Appendix D

Preliminary Jurisdictional Waters and Wetlands Delineation Report

Preliminary Jurisdictional Delineation and Wetland Determination Report

Thousand Palms Flood Control Project

Prepared for:

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March 2020 (Updated June 2020)

Preliminary Jurisdictional Delineation and Wetland Determination Report

Thousand Palms Flood Control Project
Riverside County, California

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of a jurisdictional determination and delineation for the above-referenced project.

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March 2020 (Updated June 2020)

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Disclaimer

This document is a Draft Preliminary Jurisdictional Delineation (PJD) and Wetland Determination Report for the Thousand Palms Flood Control Project, prepared by Aspen Environmental Group on behalf of the Coachella Valley Water District (CVWD). The purpose of this Draft PJD and Wetland Determination Report is limited to internal review by the CVWD and resource agencies with regulatory jurisdiction over this project. This document is a work in progress; portions will be revised, and the page numbers will change. This Draft PJD and Wetland Determination Report shall not be published or otherwise circulated to the public this time. As the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) processes for this project move forward, the Draft PJD and Wetland Determination Report will be refined, and a public draft will be published.

1.0 Introduction

This report presents the findings of an investigation of potential federally jurisdictional features conducted by Aspen Environmental Group (Aspen) for the Thousand Palms Flood Control Project (Project). This report is a stand-alone report prepared by Aspen for the Project and is independent of a previous Final Draft Preliminary Jurisdictional Delineation Report prepared by Aspen in 2013 for an earlier design of the same Project (Aspen, 2013).

The Project is located in the Thousand Palms area of the Coachella Valley in Riverside County, California. For the purpose of this report we have focused on a clearly defined Review Area that refers to the proposed impact areas refer to Figure 1, Attachment A. The Review Area refers to areas that will be either permanently or temporarily disturbed during construction of the Project. This also includes a sediment disposal area just south of Reach 4 which is also expected to be disturbed by the Project. Refer to Section 4 for additional information on the extent of the Review Area.

The majority of the Review Area is located within unincorporated Riverside County and includes the community of Thousand Palms. Cities near the Review Area include Cathedral City to the northwest, Indio to the southeast, and both Rancho Mirage and Palm Desert to the south. The primary land use of the Review Area is natural open space, with residential, recreational, commercial and agricultural uses concentrated in areas just north of Interstate 10. Industrial uses are scattered throughout the central portion of the Review Area between Interstate 10 and the base of the Indio (USACE, 2000). Access to the site from Palm Springs can be achieved by heading north on Bob Hope Drive (Rio Del Sol Road to the north of Varner Road) and continuing north to its terminus at 28th Avenue. The Review Area is shown on the United States Geological Survey (USGS) Cathedral City and Myoma, California 7.5-minute Topographic Quadrangle (Sections 7, 8, 16, 17, 27, 34, 35, and 36, T4S, R6E). The Latitude-Longitude coordinates corresponding to the northwestern and southeastern boundaries of the Review Area are 33°50'26.4"N, -116°24'20.2"W and 33°46'22.5"N, -116°18'14.5"W respectively.

The assessment of potentially jurisdictional wetlands and non-wetland "waters of the U.S." within the Review Area was conducted by Aspen senior biologists Justin Wood and Chris Huntley on December 19 and 20, 2018 and Mr. Wood on March 18 and 19, 2019. Mr. Wood also visited the Review Area with William Patterson from the CVWD and Kyle Dahl from the Army Corps of Engineers (USACE) on February 22, 2019. Mr. Huntley and Mr. Patterson visited the Review Area with Christopher Allen from the USACE on September 16, 2019. A final site visit was conducted by Mr. Wood and Mr. Huntley on December 11, 2019. Data collected in 2013 for a previous JD report was also reviewed as part of this most current assessment. This assessment was conducted to determine the extent of streambeds and other resources that may be under the jurisdiction of the USACE).

1.1 Project Description

The Coachella Valley Water District (CVWD) proposes to construct a series of flood control improvements (i.e., levees, channels, and energy dissipaters) to reduce flood hazards in the Thousand Palms area. Flood control improvements associated with the Project would reduce flood hazards from coalescing alluvial fans in the area between the Indio Hills and Interstate 10. A community consists of approximately 3,000 homes (encompassing approximately 2,000 acres) is present downslope of the Review Area and lacks storm water control features. It is the Projects primary objective to protect existing and future development in this area.

As a secondary objective, the Project would maintain an important sand transport corridor (via aeolian and/or fluvial means) to the Coachella Valley Preserve. A portion of the 15,000-acre Coachella Valley

Preserve, including the Coachella Valley National Wildlife Refuge, is located within the Review Area. The lands lying within the Preserve are owned and administered by the U.S. Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), and the California Department of Fish and Wildlife (USACE, 2000). The Preserve supports Critical Habitat, including sand dunes, for populations of the State endangered and federally threatened Coachella Valley fringe-toed lizards.

The Project includes levees, channels, and energy dissipating structures. The levees and channels would be comprised of native material excavated from the Review Areas. To provide scour protection, the upslope sides of each levee and channel would be armored with soil cement, which is typically a compacted, high-density mix of pulverized rocks and soils combined with cement and water. The types of facilities that would be constructed for each of the Project reaches is described below.

- **Reach 1.** Reach 1 is comprised of a 12,667-foot-long (2.4 miles) levee (Levee 1) with an access road at Via Las Palmas. Levee 1 would have a height of approximately 11.5 feet on the upstream end, increasing to approximately 14 feet on the downstream end, in order to ensure capacity associated with a 100-year storm event. Levee 1 would initiate approximately 0.1 miles to the east of the intersection of 28th Avenue and Rio del Sol and then extend in an east-southeasterly direction. The levee would generally run parallel to and north of Southern California Edison's (SCE) existing utility corridor. Continuing in a southeasterly direction, Levee 1 would cross over Sierra del Sol and Desert Moon Drive. Water and sediment from the Indio Hills would flow naturally toward Reach 1 and be diverted to the approximately 550-acre floodway in the wind corridor.

  Road Crossing. At Via Las Palmas, a road would be constructed over the levee to maintain access between the communities north and south of Levee 1. The access road would be 20 feet wide with a 10 percent grade, designed for motor vehicle traffic at speeds of approximately 35 miles per hour. The selected road design would result in the smallest permanent footprint to reduce the potential for interfering with sand migration.

  Reservoir 4602. Adjacent to the west of Via Las Palmas and to the north of the proposed Reach 1 alignment is an existing water tank that is owned and operated by CVWD, referred to as "Reservoir 4602." A small berm with established vegetation protects the west (upstream) side of the Reservoir 4602. This facility would be protected and maintained with implementation of the Project, however additional flood protection may be provided to ensure the integrity of the structure.

  Energy Dissipater. An energy dissipater structure may be installed at the downstream end of the Reach 1 Levee, in order to slow the velocity of stormwater across the Preserve and avoid adverse effects associated with erosion. The energy dissipater structure may consist of a field of boulders, or soil cement, and would be designed to achieve the following: (1) reduce flow velocity and depth; (2) spread flow out onto the alluvial fan; and (3) induce deposition of fluvially-transported sediment on the wind corridor, for natural transport onto the Coachella Valley Preserve.

  Stormwater from the Indio Hills would be directed by the Reach 1 levee away from the community of Thousand Palms and across the energy dissipater structure, continuing overland in a southeast direction towards Reaches 2 and 3.

- **Reach 2.** Reach 2 is comprised of a 1,747-foot-long (0.33 mile) levee (Levee 2) with a height of approximately 14 feet. Levee 2 is located in the mid-alluvial fan area just northeast of an existing electrical substation and adjacent residential development. Reach 2 would accept flows from Reach 1 and divert flows to the southeast along the western border of the Coachella Valley Preserve. Levee 2 would be situated in the direction of the prevailing wind to avoid interference with aeolian processes, or the movement of sand by wind.

- **Reach 3.** Reach 3 is comprised of a 6,498-foot-long (1.23 mile) levee (Levee 3), an access road, and a 5,314-foot-long (1.01 mile) incised channel (Reach 3 Channel). Levee 3 would have a height of approximately 14 feet at the upstream end, increasing to approximately 18 feet at the downstream end in order to accommodate the 100-year storm event. Levee 3 would initiate approximately 2,000 feet southwest of the downstream end of Levee 2, roughly 1,000 feet south of Ramon Road. Levee 3 would run parallel to the north of the future Cook Avenue, then transition to an incised channel. The Reach 3 Channel would divert flows from Levee 3 into the Classic Club Golf Course, where existing stormwater drainage features are sufficient to transport flows through the golf course property. The Project would not alter the Classic Club Golf Course, and the Project has been developed in coordination with golf course management.

  A portion of the Reach 3 Channel would traverse athletic facilities located in the northeast corner of the Xavier High School, then turn south to follow the school's eastern border before turning east and terminating at the Classic Club Golf Course. The Reach 3 Channel would be supplemented with a five-foot-tall embankment on the west side and lined with either concrete or soil cement. A 15-foot-wide access road would be located adjacent to the north (east) of Levee 3 and the Reach 3 Channel to support operation and maintenance activities. A proposed sediment disposal site is also located just east of Reach 3 near the Pegasus Therapeutic Riding facility.

- **Reach 4.** Reach 4 is comprised of an approximately 10,560-foot-long (two-mile) incised channel (Reach 4 Channel). The Reach 4 Channel would accept stormwater flows from the southeast end of the Classic Club Golf Course and continue south then east, north of Avenue 38 (to be re-aligned) and Interstate 10. Reach 4 is located immediately south of the Coachella Valley Preserve and would terminate at Washington Street near the community of Del Webb / Sun City where the flows enter existing storm water facilities. A sediment disposal area is also included in Reach 4. This area will be used to dispose of excess sediment that accumulates in the Reach 4 Channel.

- **Washington Street Crossing.** The Project would include construction of a series of culverts to direct stormwater flows under Washington Street and into an existing stormwater conveyance system in the community of Del Webb/Sun City. The existing system has sufficient capacity to accommodate the additional flows that would be contributed by the Project. The Washington Street crossing would disturb a maximum of five acres, accounting for any road realignment that may be necessary.

- **Floodway.** The Project includes acquisition of an approximate 550-acre floodway located along the levees and on the active wind corridor between Reach 1 and Reach 3. Development would be prohibited on this floodway area to protect the existing sand transport corridor. During operation and maintenance of the Project, some of the material that accumulates along Project levees and channels would be excavated and distributed on the preserved floodway to provide source material for natural sand distribution onto the Preserve

1.2 Contact Information

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1.3 Site Access

The submittal of this report grants the USACE access to all CVWD-owned parcels within the Review Area. All other parcels within the Review Area and applicable contact information is provided in Attachment G. These parcels can all be legally accessed by public roads. The northwestern extent of the Review Area is just east of the intersection of Rio Del Sol Road and 28th Avenue; driving directions to this area are provided below.

Table 1. Driving Directions to the Review Area

From The Greater Los Angeles Area of Southern California:
Take Interstate 10 east towards San Bernardino/Palm Springs
Exit at Bob Hope Drive
Turn left on Bob Hope Drive
Continue on Bob Hope Drive which turns into Rio Del Sol Road and crosses Varner Road
Continue North on Rio Del Sol Road to its terminus at 28th Avenue

2.0 Existing Site Conditions

2.1 Topography and Surrounding Land Uses

The Coachella Valley averages about six-miles-wide and slopes gradually from west to east for approximately 40 miles between the San Gorgonio Pass and the Salton Sea. The Coachella Valley's defining mountain ranges, the San Jacinto and Santa Rosa Mountains to the southwest and the Little San Bernardino Mountains to the north, are composed primarily of granitic and metamorphic rock. Over the past three million years, erosion of the mountains has filled the basin (valley) floor with alluvial, colluvial, and aeolian (wind-transported) materials which are estimated to be more than 1,000 feet deep near San Gorgonio Pass, increasing to 14,000 feet in depth near the southern part of the valley. Elevations within the Review Area range from 1,614 feet above sea level at Edom Hill near the northwestern end of the Indio Hills to about 30 feet above sea level at the southern end of the Review Area near Indio. (USACE, 2000)

A substantial portion of the Coachella Valley is urbanized with the majority of urban development located along the southern edge of the valley near the base of the San Jacinto and Santa Rosa Mountains. Nearly continuous urban development exists along the south side of the valley from the City of Palm Springs in the northwest, near San Gorgonio Pass, to the Cities of Indio, Coachella, and La Quinta in the southeast. The only incorporated community on the north side of the Coachella Valley is the City of Desert Hot Springs, located north of Palm Springs. (USACE, 2000)

2.2 Existing Vegetation

The alluvial fans, sand fields, and shallow drainages present within the Review Area support a broad assemblage of native plants and also several non-native plant species. Vegetation mapping of the Review Area has been completed several times over the last 15 years, to support the original EIR/EIS and then for subsequent Project-related efforts. Vegetation was remapped in 2013 to reflect vegetation communities, as the conditions in the Review Area are dynamic due to anthropogenic (development, varying levels of

OHV use, trash dumping, etc.) and natural processes (fluvial and aeolian sand transport and associated shifts in vegetation composition). During the 2018 and 2019 site visits, Aspen verified the vegetation mapped within the Review Area and updated the nomenclature (Figure 3 in Attachment 1). The vegetation types described in this report do not follow the vegetation classifications described in the 2000 EIR/EIS but were selected because they are the most current accepted nomenclature described in *A Manual of California Vegetation* (Sawyer et al. 2009).

Allscale scrub (*Atriplex polycarpa* Shrubland Alliance)
Allscale scrub is dominated by cattle saltbush (*Atriplex polycarpa*), also referred to as allscale. It tends to grow in nearly monotypic stands that have very low species diversity. It is similar to desert saltbush scrub described in the EIR/EIS (USACE, 2000). Allscale scrub is only found within Reach 3 where it grows in low, poorly drained areas with sandy or loamy alkali soils, as well as at the margins of the sand fields. The soils within the areas mapped as allscale scrub is composed of playa and stabilized sand fields.

Cheesebush - sweetbush scrub (*Ambrosia salsola - Bebbia juncea* Shrubland Alliance)
Cheesebush - sweetbush scrub is dominated by cheesebush (*Ambrosia salsola*). Other associated plants include smoke tree (*Psorothamnus spinosus*), desert lavender (*Hyptis emoryi*), and catclaw (*Senegalia greggii*), which occur in limited numbers. This vegetation is similar to desert wash described in the EIR/EIS (USACE, 2000). Cheesebush scrub is found in the sandy washes crossed by Reach 1, which are routinely subjected to scour by intermittent storm flows.

Creosote bush scrub (*Larrea tridentata* Shrubland Alliance)
Creosote bush scrub is dominated by creosote bush (*Larrea tridentata*), which tends to form nearly monotypic stands. There is a limited number of other shrubs present; some of these include burrobush (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), and dyebush (*Psorothamnus emoryi*), as well as a variety of seasonal annuals such as birdcage evening primrose (*Oenothera deltoides*) and Spanish needle (*Palafoxia arida*). It is similar to creosote hummocks described in the EIR/EIS (USACE 2000). The western portions of Reaches 3 and 4 are the only portions of the project that support creosote bush scrub. Other portions of the Review Area have creosote bush present, but it tends to co-occur with other dominant shrub species and is therefore classified as a different vegetation type, as addressed below. The soils within the areas mapped as creosote bush scrub are primarily stabilized sand fields.

Creosote bush-allscale scrub (*Larrea tridentata-Atriplex polycarpa* Association of *Larrea tridentata* Shrubland Alliance)
Creosote bush-allscale scrub is characterized by co-dominant cattle saltbush and creosote bush. It is similar to allscale scrub as described above, with a larger proportion of creosote bush. It is similar to desert saltbush scrub described in the EIR/EIS (USACE, 2000). Creosote bush-allscale scrub is only found within Reach 3 of the Review Area. It occurs at the margins of low-lying, poorly drained areas, and at the transition from these areas to adjacent stabilized sand fields. The soils within the areas mapped as creosote bush-allscale scrub is composed of playa and stabilized sand fields.

Creosote bush-white bursage scrub (*Larrea tridentata - Ambrosia dumosa* Shrubland Alliance)
Creosote bush-white bursage scrub is characterized by co-dominant creosote bush and burrobush, also called white bursage. Other shrubs occur less commonly, including Schott's dalea (*Psorothamnus schottii*) and cheesebush. Creosote bush-white bursage scrub is similar to creosote bush scrub, but burrobush is much more abundant. Some common annuals observed within this vegetation include pincushions (*Chaenactis* spp.), hairy desert sunflower (*Geraea canescens*), and brittle spineflower (*Chorizanthe brevicornu*). It is similar to burro-weed scrub described in the EIR/EIS (USACE, 2000). This vegetation type

covers portions of Reach 1 and all of Reach 2. The soils within the areas mapped as creosote bush-white bursage scrub is primarily rocky and sandy bajada.

Creosote bush–white bursage- indigo bush scrub (*Larrea tridentata-Ambrosia dumosa-Psorothamnus schottii *Association of* Larrea tridentata-Ambrosia dumosa *Shrubland Alliance)
Creosote bush mixed scrub is characterized by creosote bush co-occurring with Schott's dalea, silver cholla (*Cylindropuntia echinocarpa*), beavertail cactus (*Opuntia basilaris*), burrobush, and cheesebush. It is the only community in the Review Area with a substantial proportion of cacti and other stem succulents. It is similar to creosote bush scrub, but more varied in composition and usually with a higher plant density. It has a similar assemblage of annuals as listed for creosote bush-white bursage scrub. It is similar to burro-weed scrub described in the EIR/EIS (USACE, 2000). This vegetation type covers the majority of Reach 1. The soils within the areas mapped as creosote bush mixed scrub is primarily rocky and sandy bajada.

Mojave-Sonoran desert dunes (*Dicoria canescens - Abronia villosa - Panicum urvilleanum* Sparsely Vegetated Alliance)
Several portions of the Review Area support active and inactive desert dunes that are largely unvegetated. In years of good rainfall, the dunes have a high cover of native annuals such as desert twinbugs (*Dicoria canescens*), desert sand verbena (*Abronia villosa* var. *villosa*), milk-vetches (*Astragalus* ssp.), hairy desert sunflower, pincushions, and birdcage evening primrose. There are a few cattle saltbush and burrobush shrubs in the dunes but many of these are dead or dying because of the shifting sands. It matches the areas mapped as stabilized and partially stabilized sand fields and dunes in the EIR/EIS (USACE 2000). The only desert dunes mapped in the Review Area are in Reach 4.

Non-native vegetation
Areas mapped as non-native vegetation are largely associated with development including residential and agriculture. There are several private residences in or adjacent to the Review Area in Reaches 1 and 3 with ornamental trees and shrubs. At the western end of Reach 4 there is a fallow agricultural field that was previously used as a farm for jojoba (*Simmondsia chinensis*), however most of the shrubs are now dead. Golf courses between Reaches 3 and 4 and adjacent to the eastern end of Reach 4 support dense cover of ornamental vegetation. Reaches 3 and 4 also contain several old windrows of tamarisk (*Tamarix ramosissima*) that were likely planted to catch drifting sand. These windrows match the description of *Tamarix* spp. Semi-natural Shrubland Stands (Tamarisk thickets) in *A Manual of California Vegetation* (Sawyer et al, 2009).

Ruderal
Several areas are mapped as ruderal (weedy) vegetation. Most of these areas have been disturbed or cleared in the past and support little vegetation. However, the density of ruderal vegetation in these areas is strongly linked to annual rainfall. The sparse vegetation present is composed of weedy native annuals and non-native annuals such as Asian mustard (*Brassica tournefortii*) and Mediterranean grass (*Schismus* sp.). The vegetation in these areas partially matches the description of upland mustards as described in *A Manual of California Vegetation* (Sawyer et al, 2009). These areas were not distinguished from the surrounding vegetation types in the EIR/EIS (USACE 2000). Ruderal vegetation was mapped in Reaches 1, 3, and 4.

Unvegetated
The remainder of the Review Area consists of roads, graded areas, and residential and commercial development that generally do not support vegetation. These areas were mapped as developed in the EIR/EIS (USACE 2000).

2.3 Climate

The basin of the Coachella Valley is considered a part of the Colorado Desert and the climate is characterized by extreme heat and dryness (USACE, 2000). Average annual rainfall for the region as recorded at the Palms Spring International Airport about 5 miles west of the Review Area is 4.85 inches (U.S. Climate Data, 2019). Estimates for the community of Thousand Palms are closer to an annual average of 4.0 inches. The seasonal rainfall variability is extremely high in the region.

During early 2019, the region experienced several significant storms. The first of which moved through the area on January 15, 2019. The second and more significant storm moved through the region on February 14 and 15, 2019. This larger storm inundated many streambeds throughout the region and caused significant flooding and damage in watersheds such as Mission Creek, White water River, and Chino Canyon. Rainfall to-date in Desert Hot Springs, approximately 8 miles to the northwest of the Review Area, is 7.79 inches with an average annual of about 6 inches (Riverside County, 2019). Rainfall to-date on Indio, approximately 6 miles to the southeast of the Review Area, is 3.45 inches with an average annual of about 3 inches (Riverside County, 2019). Based on monsoonal and winter storm events, much of the annual rainfall is incurred during distinct episodic precipitation events, rather than distributed evenly or seasonally. Furthermore, isolated events often occur in the Coachella Valley, for example a significant rainfall event of 1-2 inches can occur in Palm Springs, while no precipitation is received during the same time in Indio.

2.4 Hydrology and Geomorphology

The Review Area is located near the center of the Coachella Valley and consists primarily of intersecting alluvial fans and a portion of the Indio Hills. The alluvial fans which cover most of this area were formed by sediment washing down from the Little San Bernardino Mountains and the Indio Hills. Alluvial fans represent a dynamic and ever-changing landscape consisting of highly erodible soils often consisting of active and inactive channel features in a braided network system. Upslope of the Review Area, the natural hydrology leading into the Review Area has been previously impacted by road development and some scattered residential and commercial development. The Review Area is also traversed by two segments of the San Andreas Fault — the Mission Creek Fault along the north edge of the Indio Hills and the Banning Fault along the south edge of the Indio Hills. (USACE, 2000).

The lower portions of the alluvial fans which have formed much of the valley floor, generally lack defined natural channels and are subsequently subject to unpredictable sheet flow patterns on the lower fans (Pacific Advanced Civil Engineering, Inc., 2017). This appears to have been the case in 1976 following Hurricane Kathleen which moved through the region and caused large flows in portions of the valley floor that do not typically receive such flows. This was evident on aerial images from 1977 which showed large areas of flow in Reaches 3 and 4 that is not otherwise well defined as show on Figure 6A and 6B (Attachment A). As flows travel downstream towards Interstate-10, they encounter a defined break in the radial contour lines and break in slope, which occurs just before Interstate 10 (Pacific Advanced Civil Engineering, Inc., 2017). Typical storm flows enter these low areas in the valley just northeast of Interstate 10 and tend to rapidly percolate or seasonally pond depending on the substrate composition in a given location. In 1976, significant flows from Hurricane Kathleen created widespread flow paths and destruction in low-lying portions of the valley floor. Flood control retention basins are also located in this area, significantly reducing surface waters flowing down valley. The valley to the southeast lacks well defined streambeds and lacks flood control conveyance infrastructure, therefore reducing the chances that flows will continue to flow southeast towards the Whitewater River. The Whitewater River enters the Salton Sea, a traditional navigable water, approximately 25 miles to the southeast of the Review Area.

2.5 Geology

The major fault zone is defined by the San Andreas Fault, which extends the entire length of the Whitewater River basin and beyond. Just east of the Review Area, near Biskra Palms, the San Andreas Fault branches into two major segments, referred to as the North Branch and South Branch. The North Branch San Andreas Fault, also known as Mission Creek Fault, runs from Biskra Palms to Thousand Palms Oasis, then along the northerly edge of the Indio Hills. The South Branch San Andreas Fault, sometimes referred to as part of the Banning fault zone, runs through the Review Area along the southerly edge of the Indio Hills (USACE, 2000).

The weathering of the granitic and metamorphic rock of the surrounding mountains has produced large quantities of sand composed primarily of quartz, biotite, and feldspar. Frequent, strong winds that blow southeastward through the San Gorgonio Pass distribute these fine-grained materials throughout large areas of the northern Coachella Valley, forming dune complexes and sand sheets. Sand movement occurs primarily along a corridor which runs in a northwest-to-southeast direction between the Indio Hills and the Whitewater River (USACE, 2000).

2.6 Soils

A typical assessment of jurisdictional wetlands and other non-wetland "waters of the U.S." includes a review of soil data from the Natural Resources Conservation Service (NRCS) historic mapping projects to determine if and where hydric soils could be present in the Review Area (NRCS, 2019a; NRCS, 2019b). Figures 2A through 2C (Attachment 2) illustrate the location of these mapped soil types in relation to the Review Area. Refer to Table 2 for a brief description of the soils within the Review Area. All of the mapped soil types are described as excessively drained, well-drained, or moderately well-drained and are not prone to flooding (or "experiences rare flooding" for map unit symbols GbA). In general, the descriptions of soil types within the Review Area indicate that hydric soils conditions are not expected. It is possible that the mapped soils below may include small pockets of other soil types that were not captured within the NRCS mapping scale but that were assessed as part of the field work discussed below in Section 4.

Table 2. Mapped Soil Types within the Review Area

Map Unit Symbol	Map Unit Name	Description
CdC	Carsitas gravelly sand, 0 to 9 percent slopes	An excessively drained soil generally found around 800 feet in elevation; parent material consists of gravelly alluvium derived from granite; depth to water table is generally more than 80 inches; not prone to flooding; gravelly sand (0 – 60 inches)
ChC	Carsitas cobbly sand, 2 to 9 percent slopes	An excessively drained soil generally found around 800 feet in elevation; parent material consists of gravelly alluvium derived from granite; depth to water table is generally more than 80 inches; not prone to flooding; cobbly sand (0 – 10 inches), gravelly sand (10 – 60 inches)
CkB	Carsitas fine sand, 0 to 5 percent slopes	An excessively drained soil generally found around 800 feet in elevation; parent material consists of gravelly alluvium derived from granite; depth to water table is generally more than 80 inches; not prone to flooding; fine sand (0 – 10 inches), gravelly sand (10 – 60 inches)
CpA	Coachella fine sand, 0 – 2 percent slopes	A well-drained soil generally found around 40 feet in elevation; parent material consists of gravelly alluvium derived from igneous rock; depth to water table is generally more than 80 inches; not prone to flooding; fine sand (0 – 11 inches), sand (10 – 60 inches)
CpB	Coachella fine sand, hummocky, 2 to 5 percent slopes	A well-drained to well-drained soil generally found around 40 feet in elevation; parent material consists of gravelly alluvium derived from igneous rock; depth to water table is generally more than 80 inches; not prone to flooding; fine sand (0 – 11 inches), sand (10 – 60 inches)

Map Unit Symbol	Map Unit Name	Description
CsA	Coachella fine sandy loam, 0 – 2 percent slopes	A well-drained to well-drained soil generally found around 40 feet in elevation; parent material consists of gravelly alluvium derived from igneous rock; depth to water table is generally more than 80 inches; not prone to flooding; fine sandy loam (0 – 10 inches), sand (10 – 40 inches), loamy sand (40 -60 inches)
GbA	Gilman fine sandy loam, 0 to 2 percent slopes	A well-drained soil generally found around 1,080 to 1.600 feet in elevation; parent material consists of alluvium; depth to water table is generally more than 80 inches; experiences rare flooding; fine sandy loam (0 – 8 inches), stratified loamy sand to silty clay loam (8 – 60 inches)
GcA	Gilman fine sandy loam, wet, 0 to 2 percent slopes	A moderately well-drained soil generally found around 400 feet in elevation; parent material consists of wind-blown sandy alluvium; depth to water table is generally 36 – 60 inches; not prone to flooding; fine sandy loam (0 – 8 inches), stratified loamy sand to silty clay loam (8 – 60 inches)
MaB	Myoma fine sand, 0 – 5 percent slopes	A somewhat excessively drained soil generally found from 200 – 1,800 feet in elevation; parent material consists of alluvium; depth to water table is generally more than 80 inches; not prone to flooding; fine sand (0 – 18 inches), sand (18 – 60 inches)
MaD	Myoma fine sand, 5 to 15 percent slopes	A somewhat excessively drained soil generally found from 200 – 1,800 feet in elevation; parent material consists of alluvium; depth to water table is generally more than 80 inches; not prone to flooding; fine sand (0 – 18 inches), sand (18 – 60 inches)

3.0 Regulatory Background

Jurisdictional waters and wetlands in the Review Area are regulated by the USACE. The USACE Regulatory Program regulates activities pursuant to Section 404 of the federal Clean Water Act (CWA). Section 404 of the CWA regulates the discharge of dredged material, placement of fill material, or certain types of excavation within jurisdictional waters of the U.S. (resulting in more than incidental fallback of material) and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. Permits can be issued for individual projects (individual permits) or for general categories of projects (general permits). Waters of the U.S. are defined by the CWA as "rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands."

The USACE is currently operating under the 2015 Final Rule defining the scope of Waters of the U.S. protected under the CWA (USACE and EPA, 2015). The USACE recently proposed a revision to the definition of Waters of the U.S. protected under the CWA (USACE and EPA, 2019). This delineation was prepared under the 2015 publication. If the 2019 proposal is adopted, it is unclear whether these ephemeral streambeds and or erosional alluvial fan features will continue to meet the definition of Waters of the U.S. as defined in the CWA.

4.0 Waters/Wetlands Delineation

4.1 Delineation Methodology

This section describes the methods employed by Aspen during surveys conducted in December 2018, March 2019, and December 2019 to determine the extent of potentially jurisdictional wetlands and/or waters that occur in the Review Area. Prior to conducting the field assessment Aspen reviewed current and historic aerial photographs, detailed topographic maps, available soils information, and local and state hydric soil list information to evaluate potential jurisdictional features. Aspen also reviewed the National Wetlands Inventory to evaluate existing mapped surface drainages and wetlands that may be present (USFWS, 2019). Many potentially jurisdictional features identified in the review of current and historical aerial photography were later determined in the field to be roads and/or off-road vehicle trails that did not exhibit and ordinary high-water mark (OHWM) or other hydrologic features.

To determination the limits of jurisdictional features, a single transect was placed down the centerline of the four Phases, this is similar to the methods in the USACE's Wetland Delineation Manual (1987). This allowed the field work to focus on potentially jurisdictional features within the Review Area. Additional parallel transects were placed downstream, as needed, to determine the location of downstream features. During the field assessment, points where these transects intercepted potentially jurisdictional waters were mapped on the aerial photographs which were accessed via Google Earth. The most recent field mapping and verification was done using aerial imagery from August 26, 2018 (DigitialGlobe, 2018). Aspen also reviewed historic aerial imagery including photographs documenting the flooding associated with Hurricane Kathleen which moved through the region and caused large flows in portions of the valley in 1976. This was evident on aerial images from 1977 which showed large areas of flow in Reaches 3 and 4 that is not otherwise well defined. The points where the transect intercepts the potentially jurisdictional waters were also recorded using a Trimble Juno SB GPS unit with an accuracy of approximately 3.3 – 6.6 feet (1– 2 meters). The combination of the GPS unit, high-resolution aerial images, and the use of Global Information System (GIS) technology allowed us to accurately map the location and quantify the limits of the potentially jurisdictional features. ESRI format GIS shape files have been included in this submission as support in the verification and delineation / determination process.

4.1.1 Federal Wetlands

Jurisdictional wetlands were delineated using a routine determination according to the methods outlined in the USACE Wetland Delineation Manual (1987) and the Arid West Supplement (2008) based on three wetland parameters: dominant hydrophytic vegetation, wetland hydrology, and hydric soils. Data on vegetation, hydrology, and soils were collected using the methods described below and, when necessary, recorded on **Wetland Determination Data Forms**. Additional information is available in Attachment D.

4.1.2 Federal Non-Wetland Waters

Jurisdictional non-wetland "waters of the U.S." were delineated based on the limits of the OHWM as determined by changes in physical and biological features, such as bank erosion, deposited vegetation or debris, and vegetative characteristics. Data for most of the features within the Review Area were collected on the updated **Arid West Ephemeral and Intermittent Streams OHWM Datasheet**. Two GPS points were collected at each location where an Intermittent Streams OHWM Datasheet was completed. The coordinates for these points are provided on the datasheets and a single point representing the center of each cross-section is shown on Figure 5 (Attachment A). See Tables 1 – 2 in Attachment D for a list of key physical features for determining the OHWM identified by the arid west manual.

4.2 Results

Ephemeral desert wash and upland habitats occur within the Review Area. Aspen delineated the limits of the potential USACE jurisdictional non-wetland "Waters of the U.S." within the Review Area (refer to Figures 5A – 5C, Attachment A). Refer to Tables 3 and Figures 5A – 5C for the locations, widths and acreages of potential jurisdictional features occurring within the Review Area. All the drainages in the Review Area flow or pond only in direct response to storms and have therefore been classified as intermittent riverine according to the Cowardin (1979) Classification System. Within the Review Area, all ephemeral desert washes and seasonal playas were classified as intermittent riverine.

Table 3. Area, Length, Width, and Classification of Jurisdictional Waters of the U.S.

Drainage ID	Latitude	Longitude	Drainage Area (acres)	Drainage Length (feet)	Drainage Width (feet)[1]	OHWM Data Sheet Number	OHWM vs. Wetland	Cowardin Classification[2]	Dominant Vegetation Type
1-1	33.84466383	-116.4038552	0.003	146	0.9	--	OHWM	Ephemeral, Riverine	Disturbed/Developed
1-2	33.84463967	-116.4037696	0.035	160	9.5	Reach 1 - 1	OHWM	Ephemeral, Riverine	Disturbed/Developed
1-3	33.84406318	-116.4031467	0.013	145	3.9	Reach 1 - 2	OHWM	Ephemeral, Riverine	Disturbed/Developed
1-4	33.8437784	-116.4028461	0.018	134	5.9	Reach 1 - 3	OHWM	Ephemeral, Riverine	Disturbed/Developed
1-5[3]	33.84227207	-116.4009543	0.047	171	12.0	Reach 1 - 4	OHWM	Ephemeral, Riverine	Creosote Scrub
1-6	33.84100848	-116.3989095	0.038	168	9.9	Reach 1 - 5	OHWM	Ephemeral, Riverine	Creosote Scrub
1-7	33.83979783	-116.3964145	0.021	233	3.9	Reach 1 - 6	OHWM	Ephemeral, Riverine	Creosote Scrub
1-8[3]	33.83862613	-116.3931115	0.039	173	9.8	Reach 1 - 7	OHWM	Ephemeral, Riverine	Creosote Scrub
1-9	33.83881385	-116.3931107	0.003	104	1.3	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-10[3]	33.83788999	-116.3903711	0.003	134	1.0	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-12	33.83741838	-116.3885969	0.003	123	1.1	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-13	33.83702754	-116.3871893	0.023	175	5.7	Reach 1 - 8	OHWM	Ephemeral, Riverine	Creosote Scrub
1-14	33.83671542	-116.3860891	0.207	138	65.3	Reach 1 - 9	OHWM	Ephemeral, Riverine	Creosote Scrub
1-15	33.83661868	-116.3853749	0.218	145	65.5	Reach 1 - 10A, 10B, 10C, 10D	OHWM	Ephemeral, Riverine	Creosote Scrub
1-16	33.83624794	-116.3849682	0.076	135	24.5	Reach 1 - 11	OHWM	Ephemeral, Riverine	Creosote Scrub
1-17	33.83621541	-116.3847329	0.020	143	6.1	Reach 1 - 12	OHWM	Ephemeral, Riverine	Creosote Scrub
1-18[3]	33.83614684	-116.3842019	0.095	166	24.9	Reach 1 - 13	OHWM	Ephemeral, Riverine	Creosote Scrub
1-19	33.83585659	-116.3829285	0.003	137	1.0	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-20	33.83573544	-116.3825836	0.003	139	0.9	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-21	33.83548222	-116.3819479	0.002	69	1.3	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-22	33.83443864	-116.3799598	0.024	512	2.0	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-23	33.83435157	-116.3797481	0.010	197	2.2	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-24	33.83420191	-116.3796014	0.007	166	1.8	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-25	33.83417431	-116.379897	0.017	193	3.8	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-26	33.83369647	-116.3796248	0.006	263	1.0	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-27	33.83311593	-116.3798172	0.007	308	1.0	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-28	33.83451781	-116.3786217	0.002	46	1.9	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-29	33.83445464	-116.3773713	0.188	140	58.5	Reach 1 - 14A, 14B, 14C	OHWM	Ephemeral, Riverine	Creosote Scrub
1-30	33.83436453	-116.376993	0.090	140	28.0	Reach 1 - 15	OHWM	Ephemeral, Riverine	Creosote Scrub
1-31	33.83416532	-116.376836	0.055	144	16.6	Reach 1 - 16	OHWM	Ephemeral, Riverine	Creosote Scrub
1-32	33.83403118	-116.3765535	0.017	187	4.0	Reach 1 - 17	OHWM	Ephemeral, Riverine	Creosote Scrub

Drainage ID	Latitude	Longitude	Drainage Area (acres)	Drainage Length (feet)	Drainage Width (feet)[1]	OHWM Data Sheet Number	OHWM vs. Wetland	Cowardin Classification[2]	Dominant Vegetation Type
1-33	33.83386363	-116.3758866	0.030	152	8.6	Reach 1 - 18	OHWM	Ephemeral, Riverine	Creosote Scrub
1-34	33.83382195	-116.3756706	0.003	149	0.9	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-35	33.8335468	-116.3753635	0.006	136	1.9	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-36	33.83383965	-116.375111	0.104	154	29.4	Reach 1 - 19A, 19B	OHWM	Ephemeral, Riverine	Creosote Scrub
1-37	33.83342018	-116.3748379	0.110	166	28.9	Reach 1 - 20A, 20B	OHWM	Ephemeral, Riverine	Creosote Scrub
1-38	33.83276116	-116.3736735	0.007	305	1.0	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-39	33.83199147	-116.3735208	0.016	676	1.0	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-40	33.83346104	-116.3731725	0.029	962	1.3	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-41	33.8330378	-116.3731801	0.007	150	2.0	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-42	33.83305178	-116.3722441	0.001	55	0.8	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-43	33.83297355	-116.3720247	0.001	26	1.7	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-44	33.83292202	-116.371836	0.001	8	0.5	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-45	33.83259761	-116.3712333	0.003	148	0.9	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-46	33.83258921	-116.3711059	0.006	139	1.9	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-47	33.83259327	-116.3706905	0.532	153	151.5	Reach 1 - 21A, 21B, 21C, 21D	OHWM	Ephemeral, Riverine	Creosote Scrub
1-48	33.83207084	-116.3698428	0.299	175	74.4	Reach 1 - 22A, 22B	OHWM	Ephemeral, Riverine	Creosote Scrub
1-49	33.83199453	-116.3690235	0.003	144	0.9	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-50	33.83202187	-116.3685301	0.004	158	1.1	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-51	33.8319695	-116.3684406	0.002	96	0.9	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-52	33.83176836	-116.3683092	0.003	149	0.9	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-53	33.83173431	-116.3682833	0.003	145	0.9	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-54	33.83167864	-116.3678611	0.007	147	2.1	Reach 1 - 23	OHWM	Ephemeral, Riverine	Creosote Scrub
1-55	33.83173969	-116.3675337	0.070	191	16.0	Reach 1 - 24A, 24B	OHWM	Ephemeral, Riverine	Creosote Scrub
1-56	33.83165599	-116.367251	0.008	173	2.0	Reach 1 - 25	OHWM	Ephemeral, Riverine	Creosote Scrub
1-57	33.83159035	-116.3669983	0.033	180	8.0	Reach 1 - 26	OHWM	Ephemeral, Riverine	Creosote Scrub
1-58	33.83127586	-116.3666981	0.008	340	1.0	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-59	33.83092794	-116.3662463	0.004	161	1.1	--	OHWM	Ephemeral, Riverine	Creosote Scrub
1-60	33.83116539	-116.3659087	0.004	179	1.0	--	OHWM	Ephemeral, Riverine	Creosote Scrub
2-1	33.82304396	-116.3708062	0.001	58	0.8	--	OHWM	Ephemeral, Riverine	Creosote Scrub
2-2	33.82312197	-116.3704838	0.392	1874	9.1	Reach 2 - 1	OHWM	Ephemeral, Riverine	Creosote Scrub
2-3	33.82285547	-116.3699907	0.001	30	1.5	--	OHWM	Ephemeral, Riverine	Creosote Scrub

Drainage ID	Latitude	Longitude	Drainage Area (acres)	Drainage Length (feet)	Drainage Width (feet)[1]	OHWM Data Sheet Number	OHWM vs. Wetland	Cowardin Classification[2]	Dominant Vegetation Type
2-4	33.82273688	-116.369775	0.002	104	0.8	--	OHWM	Ephemeral, Riverine	Creosote Scrub
2-5	33.82137564	-116.3682912	0.029	140	9.0	Reach 2 - 2	OHWM	Ephemeral, Riverine	Creosote Scrub
2-6	33.8189734	-116.365909	0.007	333	0.9	--	OHWM	Ephemeral, Riverine	Creosote Scrub
3-1	33.8095457	-116.3630288	0.004	157	1.1	--	OHWM	Ephemeral, Riverine	Creosote Scrub
3-2	33.80938056	-116.3631784	0.003	112	1.2	--	OHWM	Ephemeral, Riverine	Creosote Scrub
3-3	33.80896859	-116.3621075	0.155	225	30.0	Reach 3 - 1	OHWM	Ephemeral, Riverine	Cheesebush Scrub
3-4	33.80672521	-116.3592614	3.939	1498	114.5	--	OHWM	Ephemeral, Riverine	Asian Mustard Stand
3-5	33.80163678	-116.3536505	0.028	276	4.4	Reach 3 - 2	OHWM	Ephemeral, Riverine	Asian Mustard Stand
3-6	33.80115813	-116.3533849	0.028	315	3.9	--	OHWM	Ephemeral, Riverine	Asian Mustard Stand
3-7	33.79665531	-116.3485887	1.002	435	100.3	--	OHWM	Ephemeral, Riverine	Asian Mustard Stand
3-8	33.79375687	-116.3466935	0.048	47	44.5	--	OHWM	Ephemeral, Riverine	Allscale scrub
3-9	33.79347004	-116.3460187	0.185	220	36.6	--	OHWM	Ephemeral, Riverine	Allscale scrub
3-10	33.79302899	-116.3456504	0.197	254	33.8	--	OHWM	Ephemeral, Riverine	Allscale scrub
3-11	33.79160581	-116.3442987	0.107	60	77.7	--	OHWM	Ephemeral, Riverine	Creosote Scrub
4-1	33.77466181	-116.333238	0.338	177	83.2	--	OHWM	Ephemeral, Riverine	Asian Mustard Stand
4-2	33.77423311	-116.3329984	0.450	289	67.8	--	OHWM	Ephemeral, Riverine	Active Sand Dune / Stabilized Sand Field
4-3	33.77221977	-116.3143107	0.448	336	58.1	Reach 4 - 1	OHWM	Ephemeral, Riverine	Active Sand Dune / Stabilized Sand Field
4-4	33.77194789	-116.3106466	1.011	377	116.8	--	OHWM	Ephemeral, Riverine	Active Sand Dune / Stabilized Sand Field
4-5	33.77210541	-116.3090468	1.465	695	91.8	--	OHWM	Ephemeral, Riverine	Active Sand Dune / Stabilized Sand Field
4-6	33.77234974	-116.3072497	0.102	112	39.7	--	OHWM	Ephemeral, Riverine	Active Sand Dune / Stabilized Sand Field
4-7	33.77209484	-116.3067289	0.230	162	61.8	Reach 4 - 2	OHWM	Ephemeral, Riverine	Active Sand Dune / Stabilized Sand Field
4-8	33.77263532	-116.3054702	0.270	387	30.4	--	OHWM	Ephemeral, Riverine	Active Sand Dune / Stabilized Sand Field
4-9	33.77251705	-116.3041076	0.121	357	14.8	--	OHWM	Ephemeral, Riverine	Active Sand Dune / Stabilized Sand Field
4-10	33.77105103	-116.3069854	1.924	521	160.9	--	OHWM	Ephemeral, Riverine	Active Sand Dune / Stabilized Sand Field
Total:	--	--	15.087	20,398	1913.2	--	--	--	--

Drainage ID	Latitude	Longitude	Drainage Area (acres)	Drainage Length (feet)	Drainage Width (feet)[1]	OHWM Data Sheet Number	OHWM vs. Wetland	Cowardin Classification[2]	Dominant Vegetation Type

[1] = Drainage widths were primarily calculated using the length and area of each drainage.

[2] = Cowardin (1979) Classification System is based on five systems: Riverine, Lacustrine, Palustrine, Marine, and Estuarine (the latter two are associated with saltwater and/or coastal waterbodies, and as such are not applicable to this region). These are further divided into subsystems based on the degree or frequency of inundation, and then into classes based on hydrological, substrate, and/or vegetation characteristics. Furthermore, Lacustrine is absent from the Review Area and is therefore not further defined.

Riverine: These systems include all wetlands and deepwater habitats contained within a channel, except for wetlands dominated by vegetation (trees, shrubs, emergents, mosses, or lichens) or habitats with ocean-derived brackish water. Riverine systems can be divided into four subsystems:

- Tidal subsystems, in which water level and velocity varies under tidal influences, though always with salinities less than 0.05%
- Lower Perennial subsystems, in which low gradients result in low water velocity and a well-developed floodplain, usually with a muddy, sandy, or silty substrate.
- Upper Perennial subsystems, in which higher gradients result in high water velocity, with limited floodplain development and a substrate of primarily gravel and cobbles.
- Intermittent subsystems, in which water flows only for part of the year, and forming either isolated pools or drying up completely throughout the rest of the year.

[3] = These drainages are included in the National Wetlands Inventory (USFWS, 2019).

4.2.1 Federal Wetlands

Based on assessment of hydrology, vegetation and soils during the field surveys and in Aspen's professional opinion, none of the features within the Review Area satisfies the criteria to be wetlands pursuant to the USACE 1987 Wetlands Delineation Manual, and 2008 Regional Supplement (Arid West Region) with subsequent clarification memoranda and dependent on confirmation by the USACE. Wetland Determination Data Forms were also completed within Reaches 1, 2 and 3 (Attachment B).

Hydrology

Based on field observations within the Review Area, the required minimum of one primary indicator of wetland hydrology was observed (surface soil cracks) within portions of the Review Area. In addition, two secondary indicators were observed (sediment deposits and drift deposits). Based on the criteria defined by the USACE Wetland Delineation Manual (1987) and the Arid West Supplement (2008) for wetland hydrology, wetland hydrology was present. Refer to Section 4.4.2 below for additional information on these features.

Vegetation

Based on field observations within the Review Area, a dominance of wetland plant species or hydrophytes were not found; the majority of vegetation observed was an assemblage of native xerophytic vegetation (dominated by creosote bush and cheesebush) and invasive weedy species (dominated by Asian mustard and Mediterranean grasses) with no wetland indicator status. Therefore, the criteria defined by the USACE Wetland Delineation Manual (1987) and the Arid West Supplement (2008) for wetland vegetation were not met.

Soils

Based on field observations within the Review Area, indicators of hydric soils were not observed; therefore, the criteria defined by the USACE Wetland Delineation Manual (1987) and the Arid West Supplement (2008) for hydric soils were not met. Observations of soils within the Review Area did not reveal evidence of ponding or soil saturation with the exception of a few select areas in Reach 2 and 3. While these areas showed evidence of ponding (i.e., surface soil cracks, shift in vegetation) the lack of hydric vegetation and soil saturation correlates with the nature of the non-hydric soils known to occur in the area.

4.2.2 Federal Non-Wetland Waters

Based on assessment of hydrology and the limits of the OHWM as determined by aerial imagery, evidence of flow, changes in physical and biological features (i.e. bank erosion, sorted sediments, deposited vegetation or debris), and vegetative characteristics, the ephemeral desert dry washes mapped within the Review Area shown in Figures 5A – 5C (Attachment A) and summarized in Table 3 may meet the definition of "waters of the United States" as defined in 33 CFR Part 328. Data on the drainages that cross the center line of the Review Area was captured on Arid West Ephemeral and Intermittent Streams OHWM Datasheet (Attachment C).

Historically the drainages present within the Review Area would have generally flowed in a southeasterly direction towards the Whitewater River about 4.2 miles southeast of the Review Area. Current flows from most of the Review Area drain south into a series of flood detention basins and seasonal playas. These

drainages are disconnected from flows that could reach the Whitewater River under ordinary flows. During significant storms, such as Hurricane Kathleen in 1976, flows inundate or bypass these flood control structures and playas and continue off-site to the southeast. A portion of the drainages within Reach 1 flow south, through several city streets and open areas and eventually are conveyed by a series of storm water structure (i.e. golf courses swales) until reaching the flood control basins (refer to Figure 6, Attachment A). The flows from these drainages and basins are not expected reach the Whitewater during normal storms but may reach the Whitewater during significant storm events and connectivity would therefore be established. The Whitewater River flows into the Salton Sea, a traditional navigable water and known jurisdictional "Waters of the U.S.".

5.0 Summary and Conclusions

All of the potentially jurisdictional features mapped within the Review Area are characterized as ephemeral desert dry washes. These washes exhibited field indicators of hydrology such as but not limited to water marks, linear deposits of sediment and/or plant debris, bank scour, and erosion. These washes were determined to have a defined OHWM and may be federally jurisdictional non-wetland "Waters of the U.S.". Using the methods described above, approximately 15.1 acres of potentially jurisdictional non-wetland "Waters of the U.S." were identified within the Review Area.

Evidence of wetland hydrology was present at several locations within the Review Area. However, no portion of the Review Area was found to support hydrophytic vegetation or hydric soils; therefore none of the habitat within the Review Area satisfies the criteria to be wetlands pursuant to the USACE 1987 Wetlands Delineation Manual, and 2008 Regional Supplement (Arid West Region) with subsequent clarification memoranda and dependent on confirmation by the USACE. Evidence of hydrology and/or a discernible OHWM was visible within many of the ephemeral desert dry washes and therefore meet the definition of "waters of the U.S." as defined in 33 CFR Part 328. This determination was based on the presence of a defined OHWM and did not rely on connectivity to known "waters of the U.S." which is problematic in this sandy alluvial valley system.

The conclusions presented above represent observations made in the field and on Aspen's knowledge and experience with the USACE regulation, including regulatory guidance documents and manuals. The USACE has final authority in determining the status and presence and extent of jurisdictional wetlands and waters within the Review Area.

6.0 References

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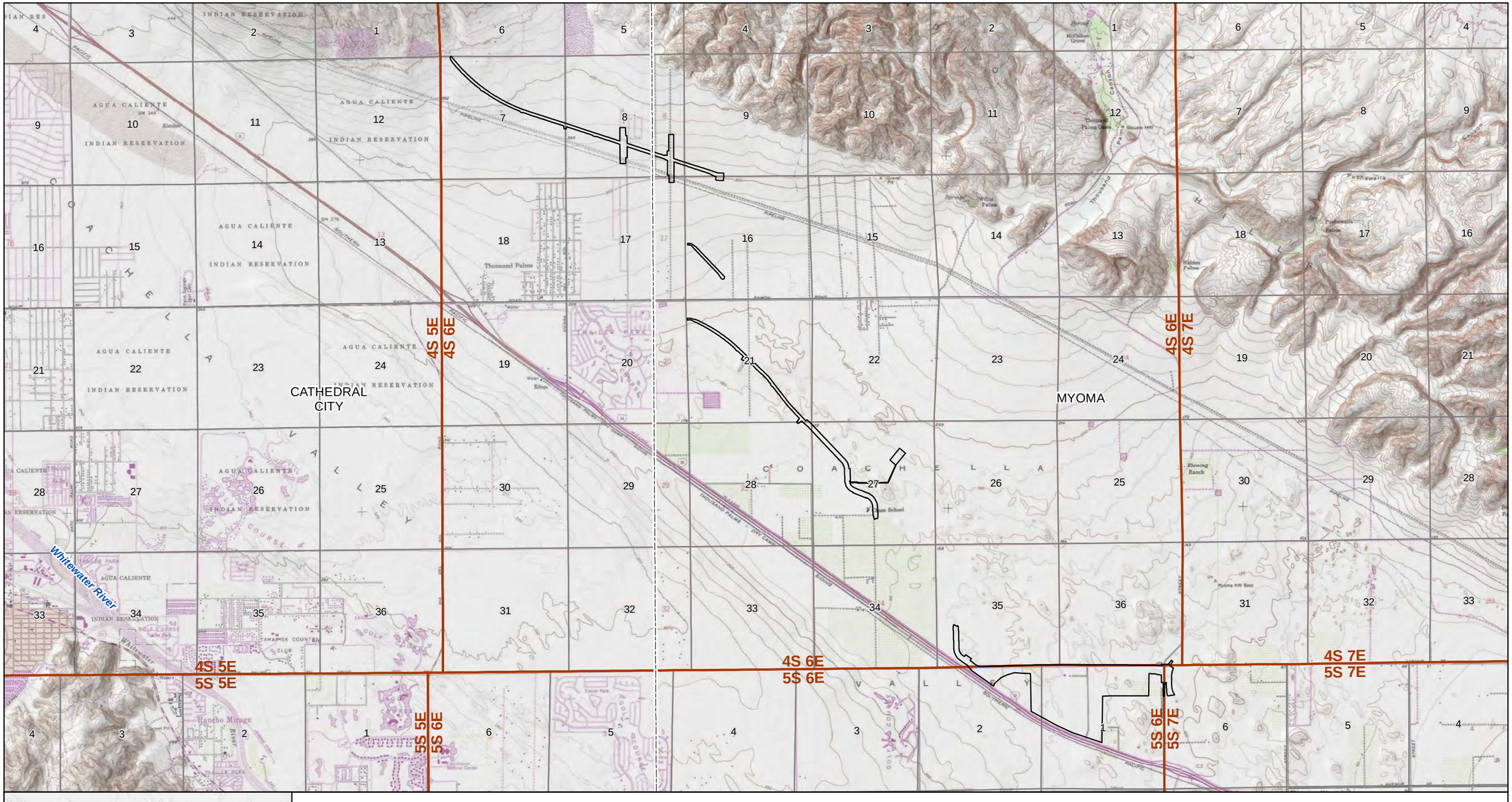
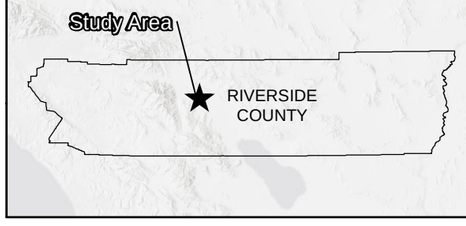
Attachment A – Figures





USGS 7.5' Quadrangles: Cathedral City & Myoma

1: 48,000

1 0 1 Miles

Review Area
PLSS Township
PLSS Section

Figure 1.

Overview

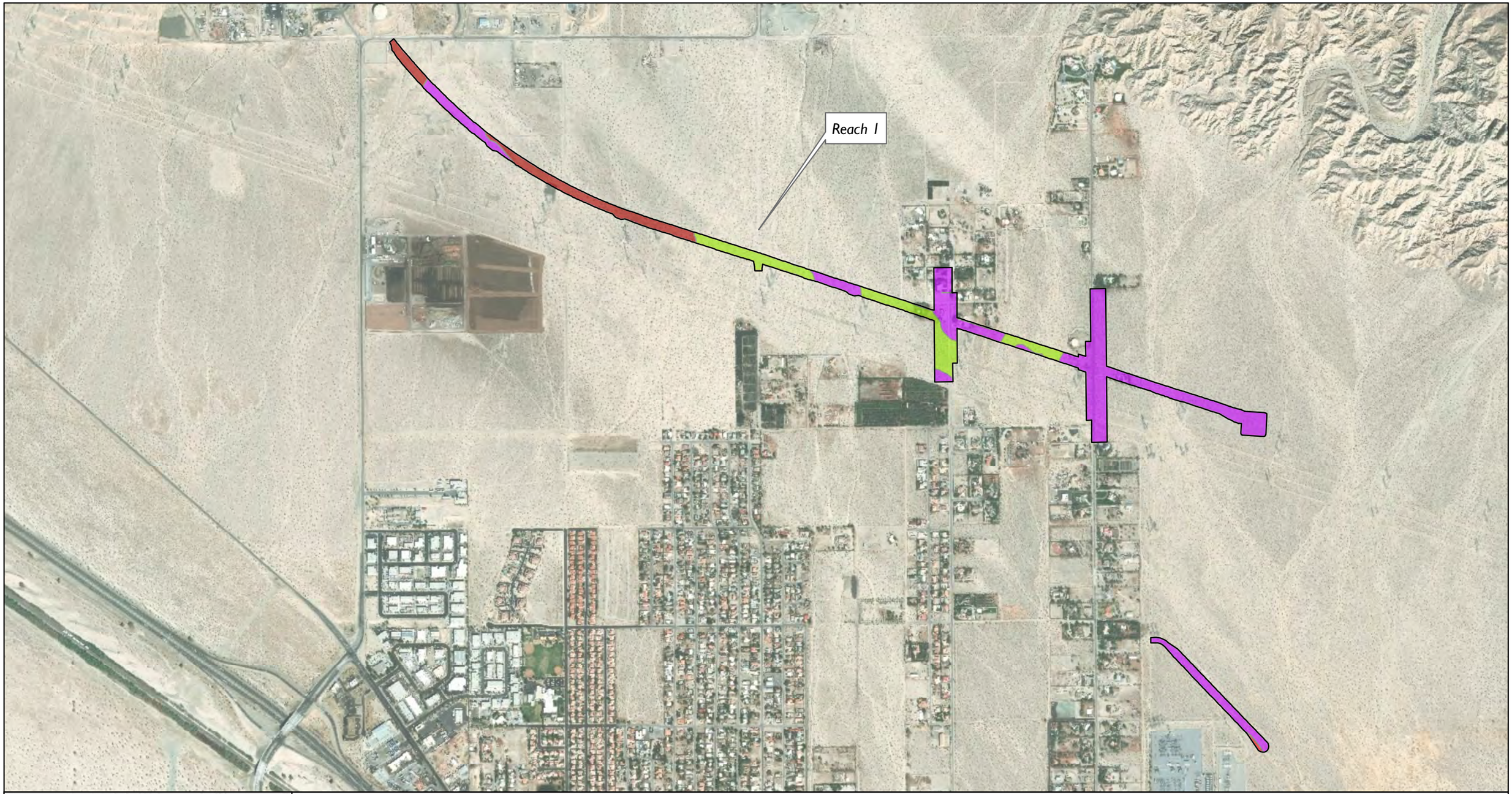
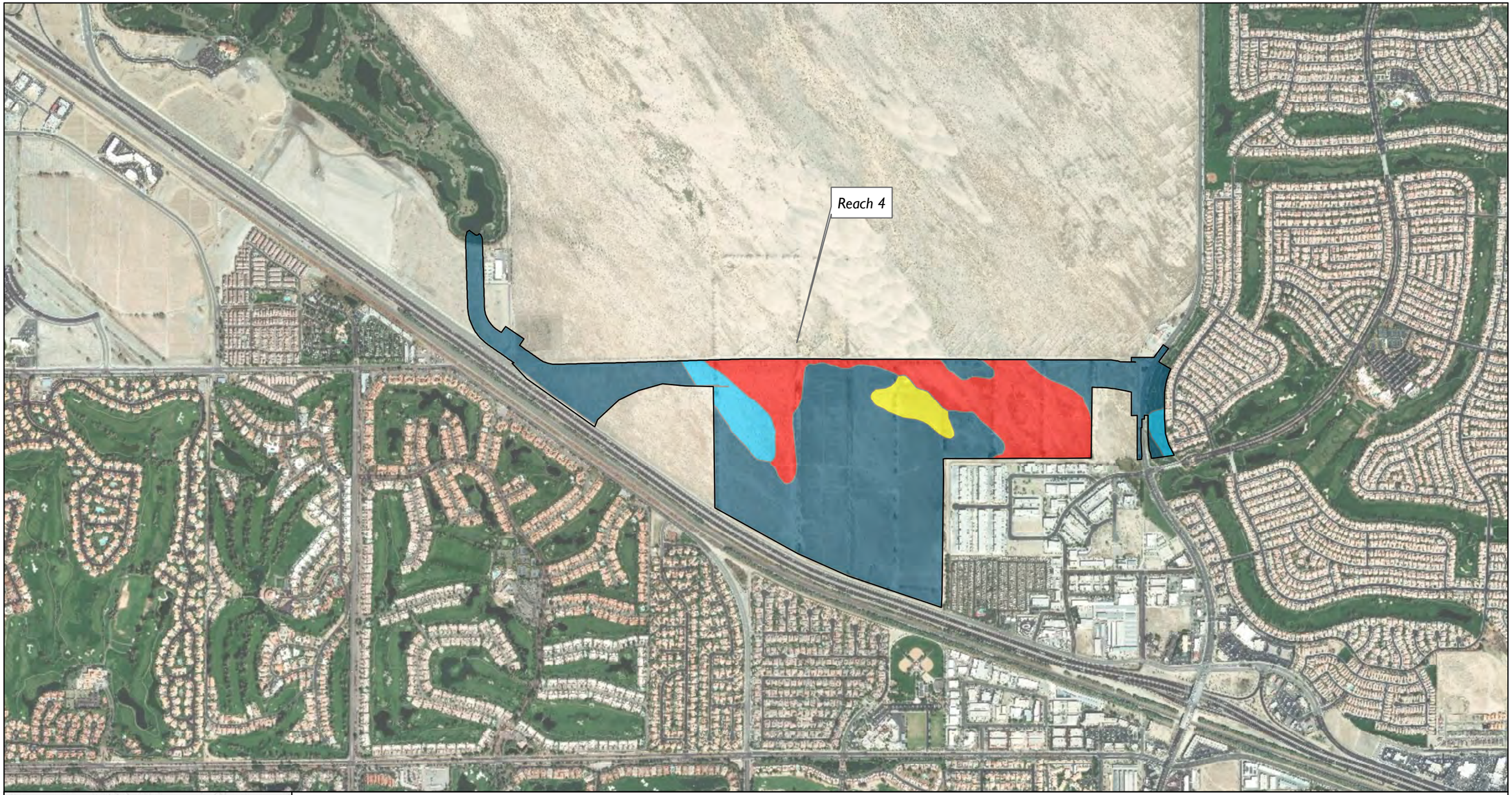


Figure 2a.

Soils

Figure 2b.

Soils



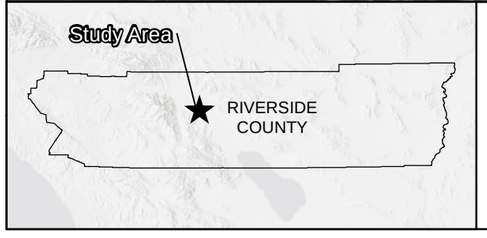


Image Source: DigitialGlobe, 2018

1,000 0 1,000 Feet

Soil Type (Total Acres in Study Area)

Review Area

CpA (226 ac)

GbA (10 ac)

MaB (90 ac)

MaD (35 ac)

Figure 2c.

Soils

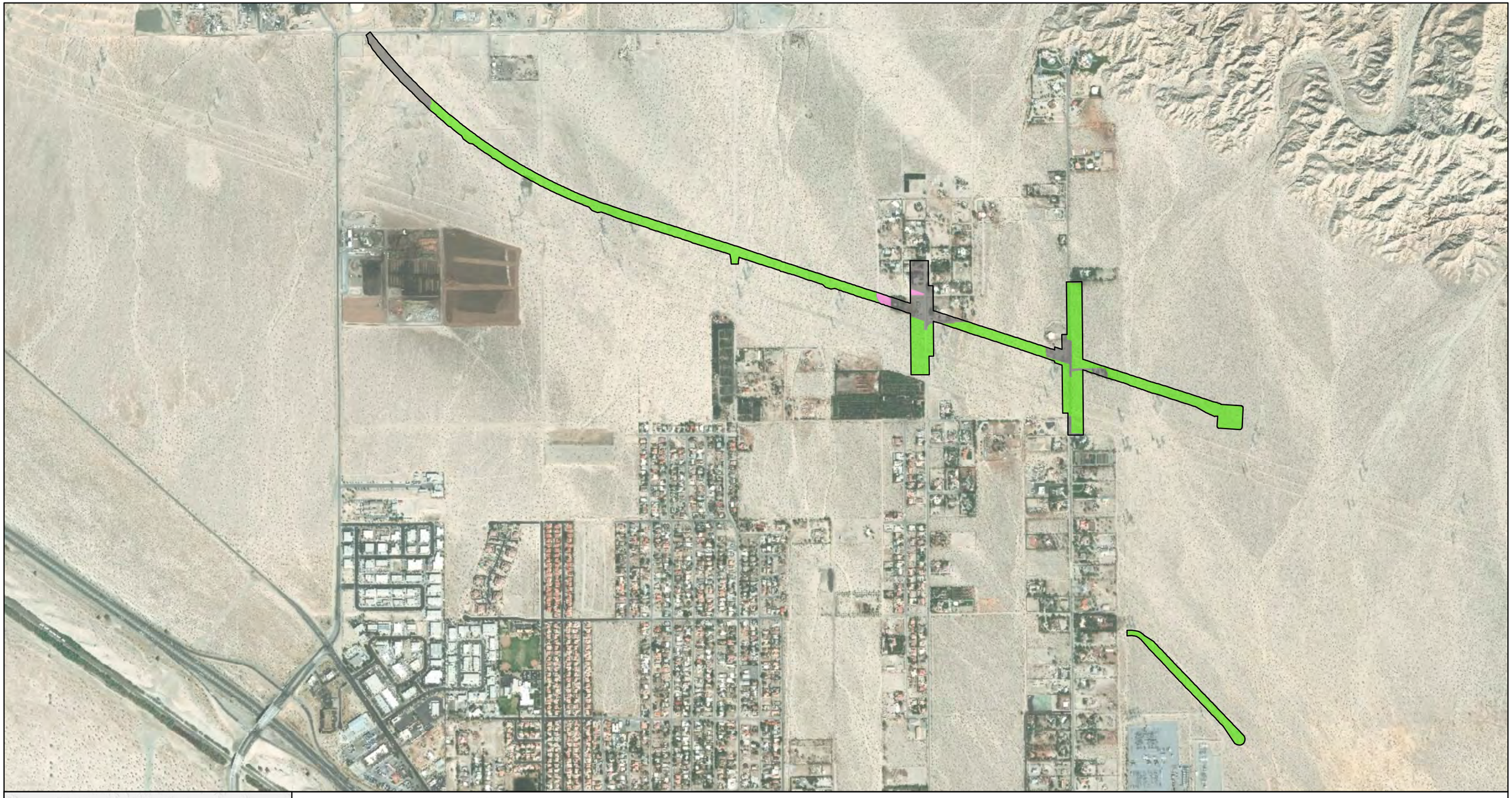


Figure 3a.

Vegetation

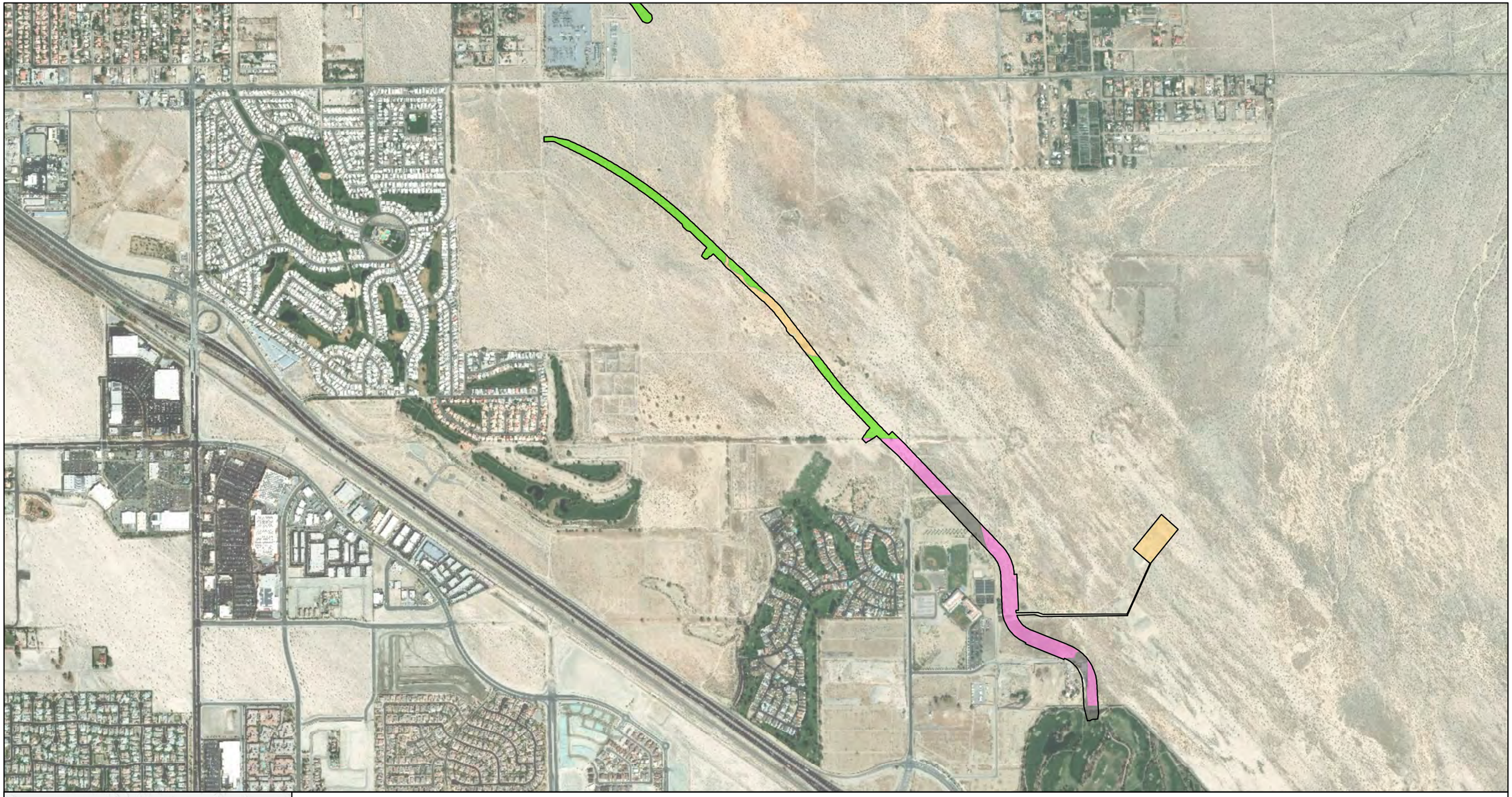


Figure 3b.

Vegetation

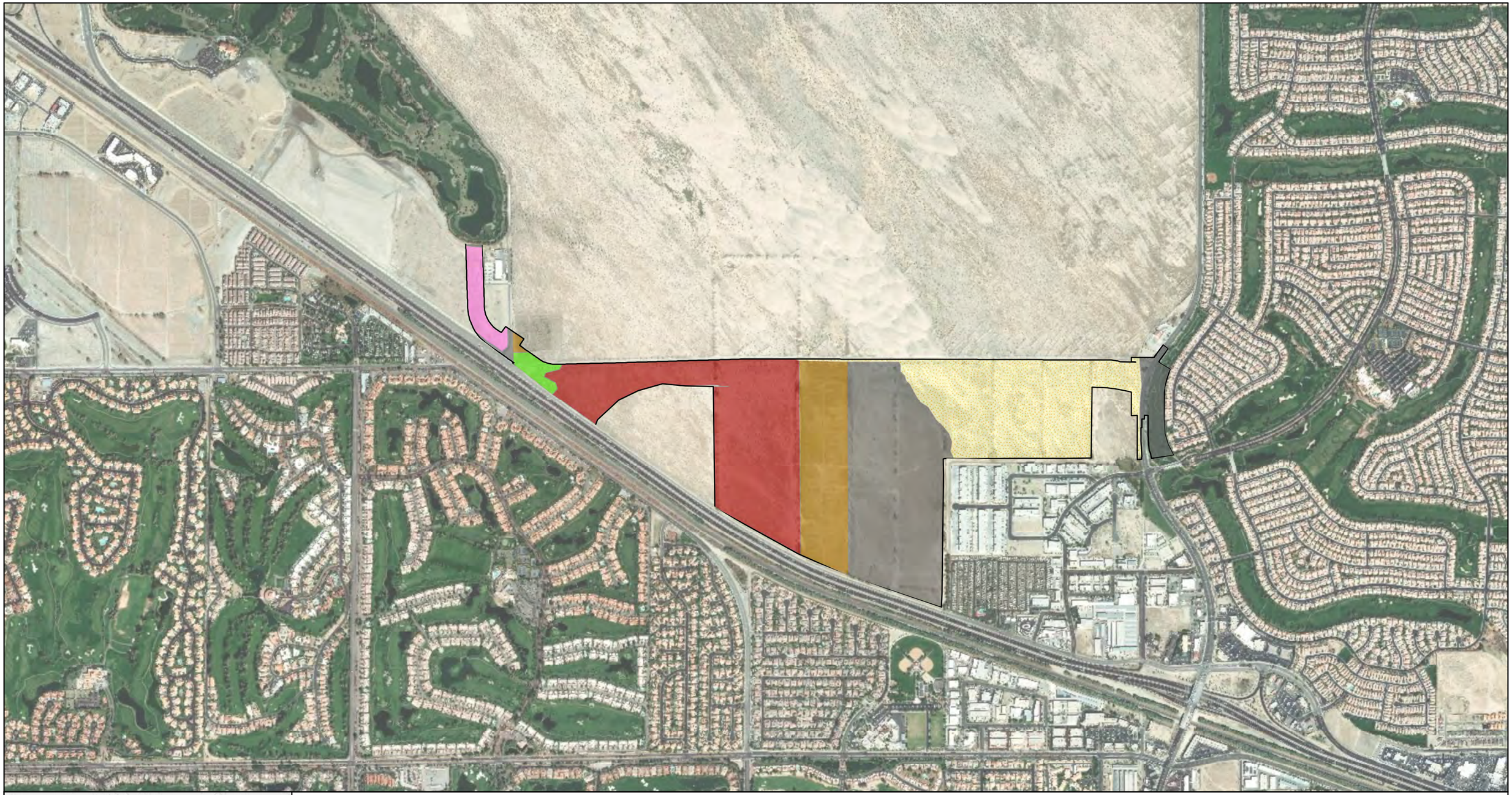
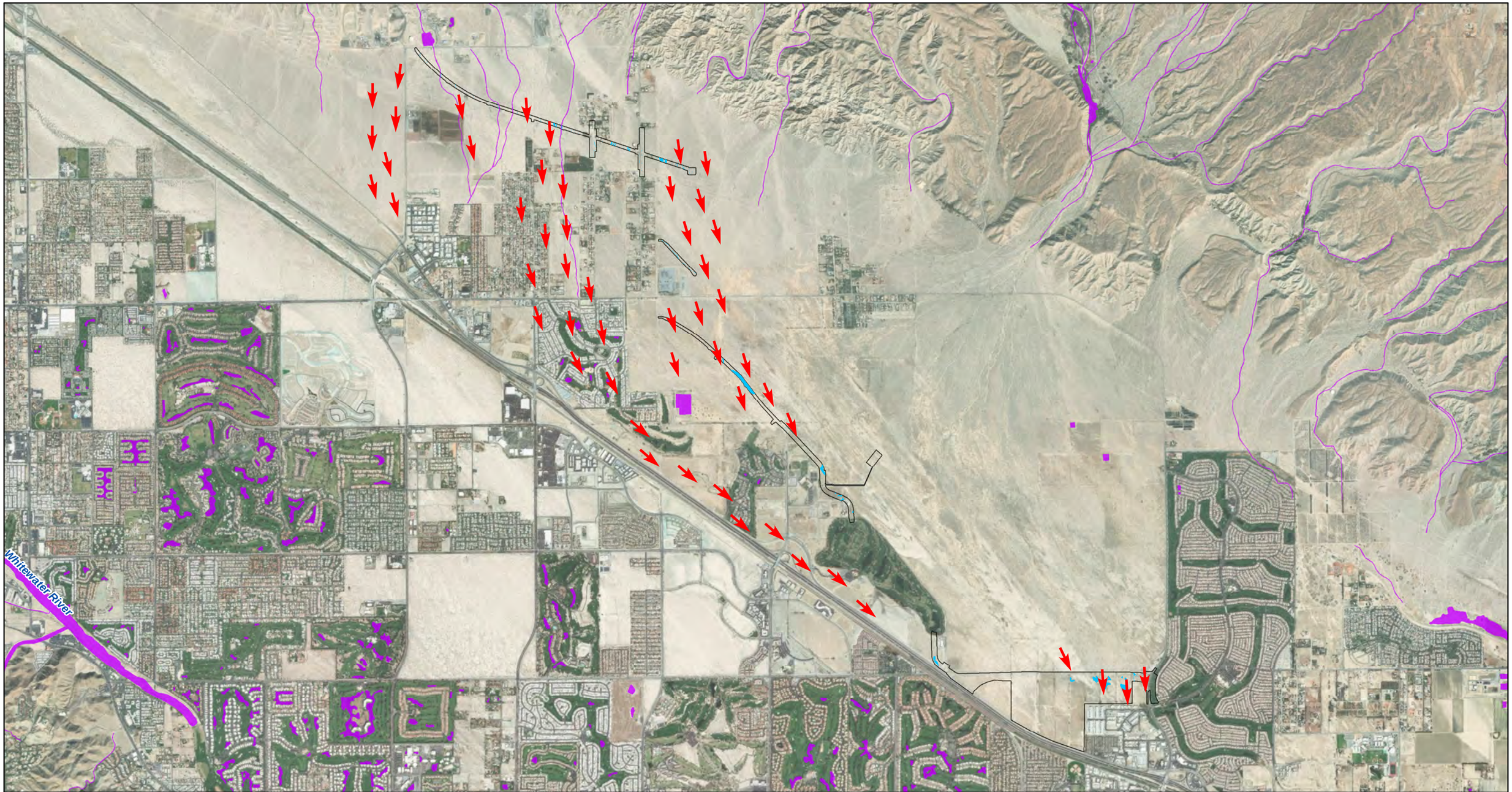


Figure 3c.

Vegetation



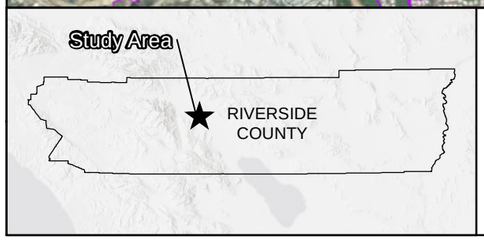


Image Source: DigitialGlobe, 2018

Review Area

Non-Wetland Waters (15.1 acres in Review Area)

Sample Location

Ordinary High Water Mark

Wetland Sample Location

National Wetlands Inventory

Flow Path

0 1 Miles

Figure 4a.

Non-wetland Waters of the U.S. and Regional Flow Paths Overview

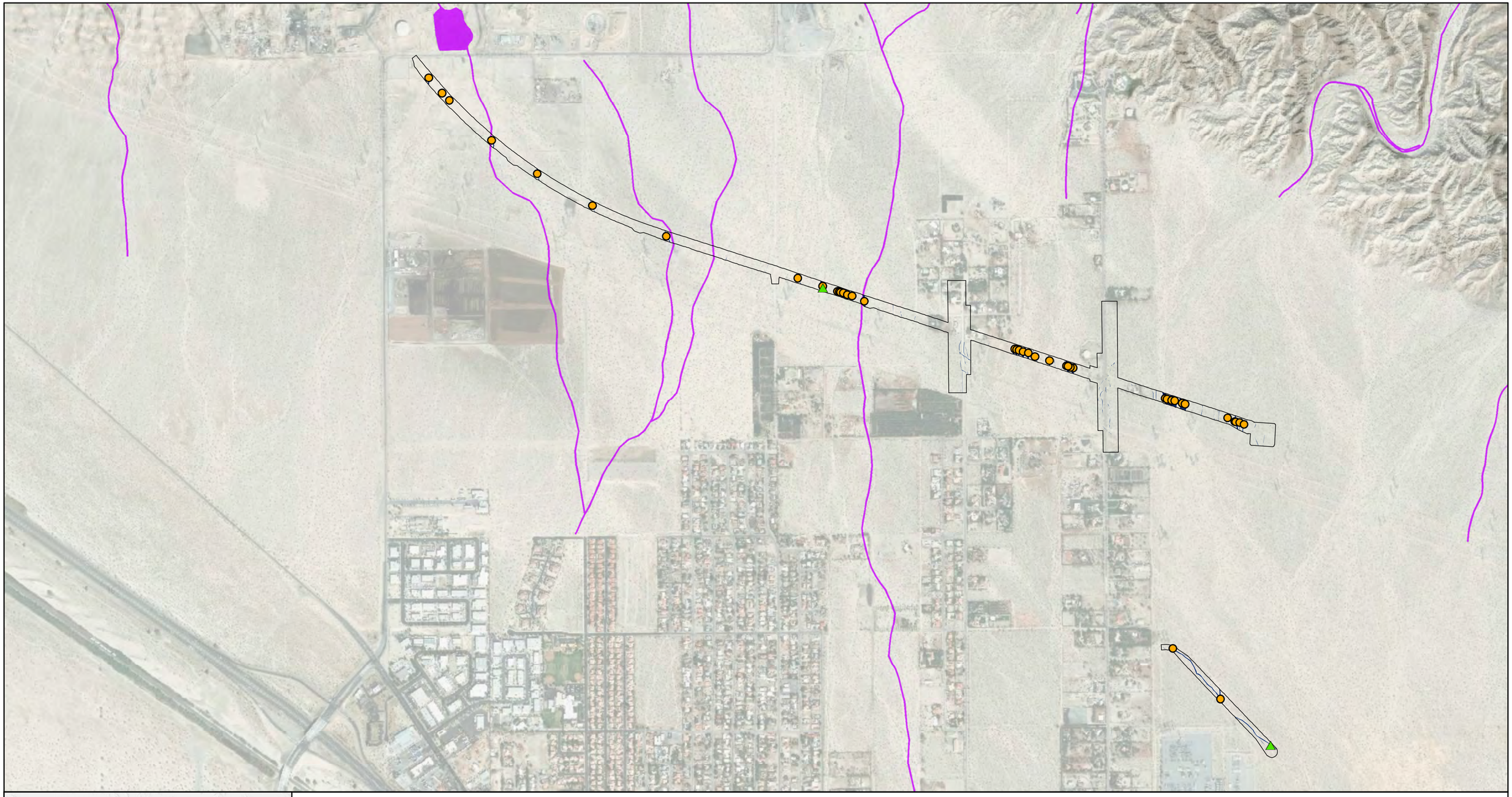
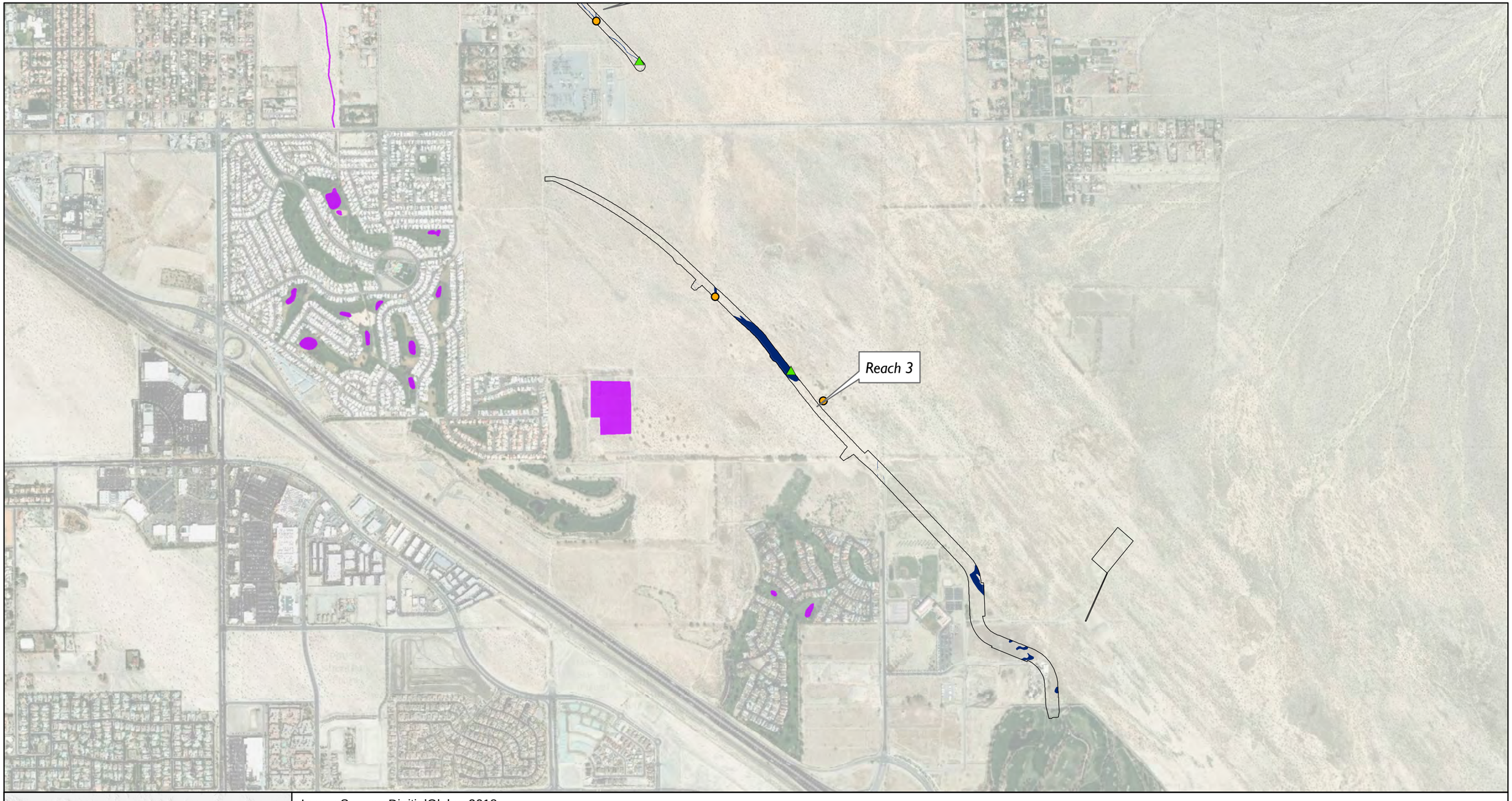


Figure 4b.

Non-wetland Waters of the U.S.



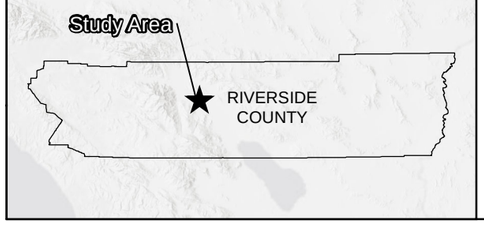


Image Source: DigitialGlobe, 2018

1,000 0 1,000
Feet

Review Area

Non-Wetland Waters
(15.1 acres in Review Area)

National Wetlands
Inventory

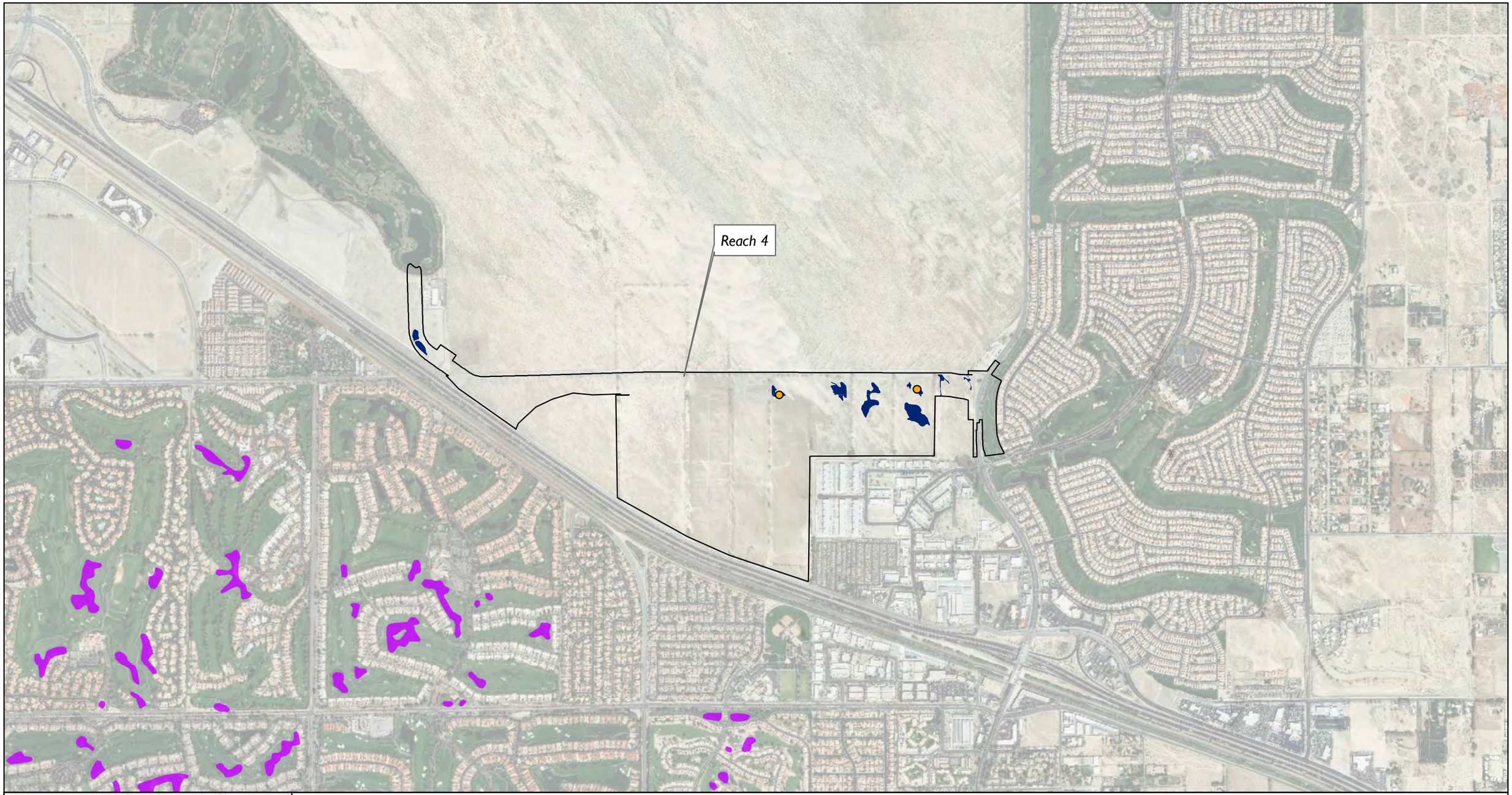
Sample Location

Wetland Sample Location

Ordinary High Water Mark

Figure 4c.

Non-wetland Waters of the U.S.



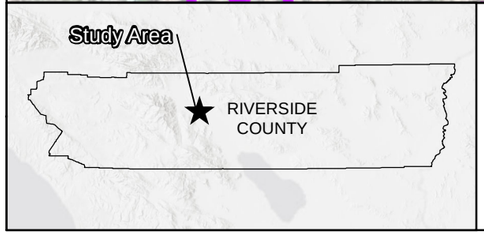


Image Source: DigitialGlobe, 2018

1,000 0 1,000 Feet

Review Area

Non-Wetland Waters (15.1 acres in Review Area)

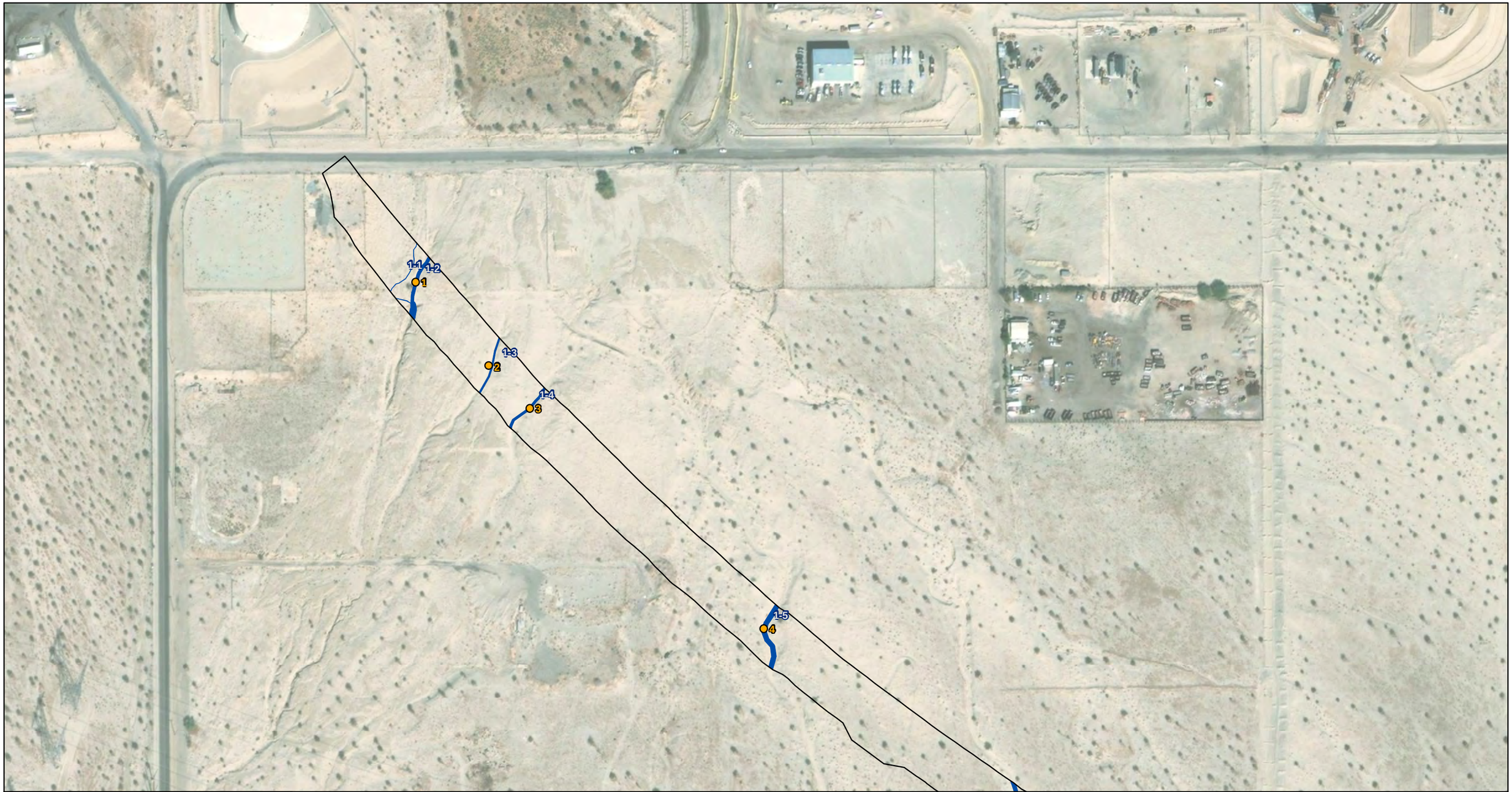
National Wetlands Inventory

Sample Location

Ordinary High Water Mark

Figure 4d.

Non-wetland Waters of the U.S.



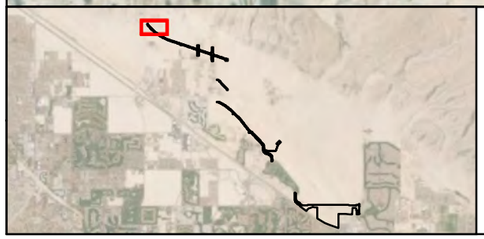


Image Source: DigitialGlobe, 2018

Review Area

Non-wetland Waters of the U.S. (15.1 ac)

Sample Location

Ordinary High Water Mark

X-X Drainage Number

X-X Data Sheet Number

100 0 200 Feet

Data Source: Field Surveys Conducted by Justin Wood and Chris Huntley on December 19 and 20, 2018, February 22, March 18, 19, and September 16, 2019.

Figure 5a.

Aquatic Resources Delineation Map

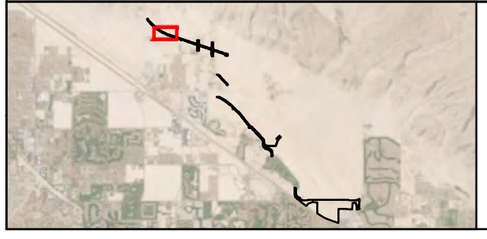


Image Source: DigitialGlobe, 2018

Review Area

Non-wetland Waters of the U.S. (15.1 ac)

X-X Drainage Number

Sample Location

Ordinary High Water Mark

X-X Data Sheet Number

100 0 200 Feet

Data Source: Field Surveys Conducted by Justin Wood and Chris Huntley on December 19 and 20, 2018, February 22, March 18, 19, and September 16, 2019.

Figure 5b.

Aquatic Resources Delineation Map

Image Source: DigitialGlobe, 2018

Review Area

Non-wetland Waters of the U.S. (15.1 ac)

X-X Drainage Number

100 0 200 Feet

Data Source: Field Surveys Conducted by Justin Wood and Chris Huntley on December 19 and 20, 2018, February 22, March 18, 19, and September 16, 2019.

Sample Location

- Wetland Sample Location
- Ordinary High Water Mark
- X-X Data Sheet Number

Figure 5c.

Aquatic Resources Delineation Map

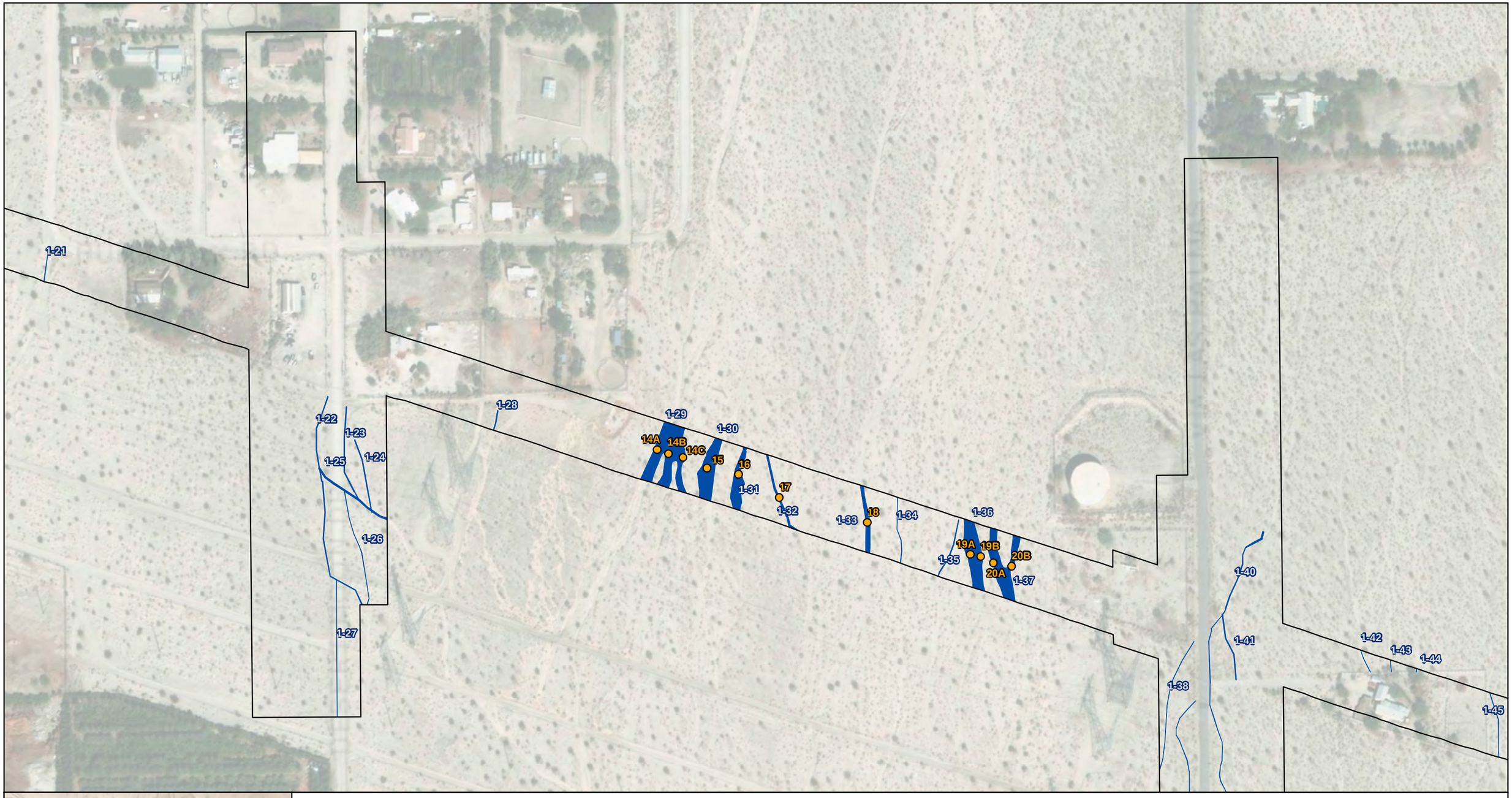


Image Source: DigitialGlobe, 2018

Review Area

Non-wetland Waters of the U.S. (15.1 ac)

XX Drainage Number

Sample Location

Ordinary High Water Mark

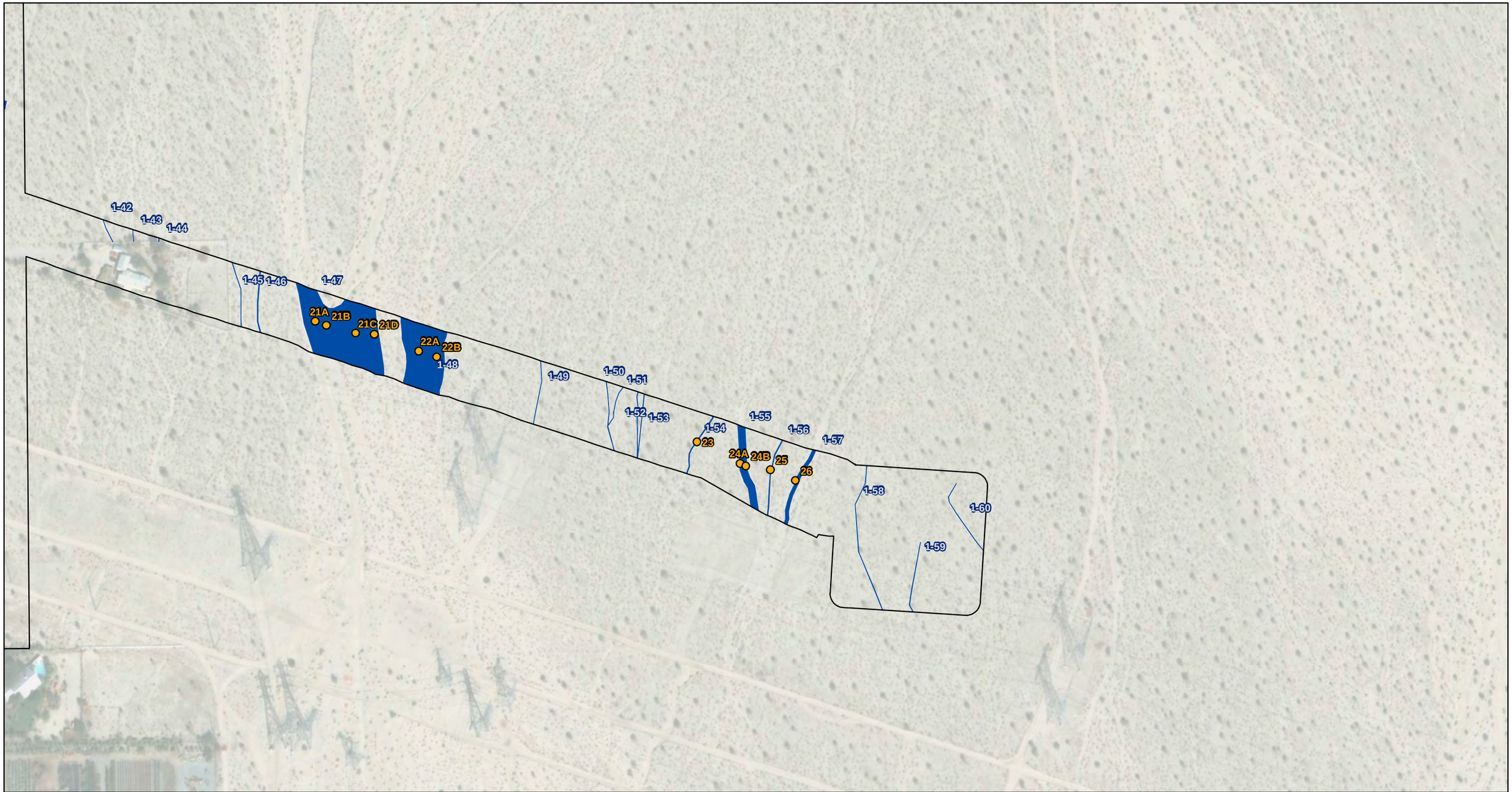
X-X Data Sheet Number

100 0 200 Feet

Data Source: Field Surveys Conducted by Justin Wood and Chris Huntley on December 19 and 20, 2018, February 22, March 18, 19, and September 16, 2019.

Figure 5d.

Aquatic Resources Delineation Map



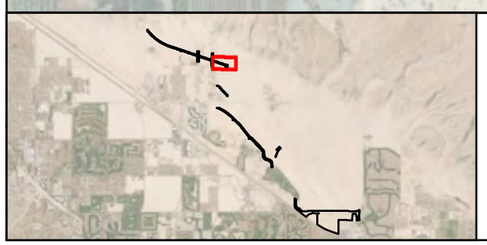


Image Source: DigitialGlobe, 2018

Review Area

Non-wetland Waters of the U.S. (15.1 ac)

XnX Drainage Number

Sample Location

Ordinary High Water Mark

X-X Data Sheet Number

100 0 200 Feet

Data Source: Field Surveys Conducted by Justin Wood and Chris Huntley on December 19 and 20, 2018, February 22, March 18, 19, and September 16, 2019.

Figure 5e.

Aquatic Resources Delineation Map

Image Source: DigitialGlobe, 2018

Review Area

Non-wetland Waters of the U.S. (15.1 ac)

XX Drainage Number

Sample Location

Wetland Sample Location

Ordinary High Water Mark

XX Data Sheet Number

100 0 200 Feet

Data Source: Field Surveys Conducted by Justin Wood and Chris Huntley on December 19 and 20, 2018, February 22, March 18, 19, and September 16, 2019.

Figure 5f.

Aquatic Resources Delineation Map

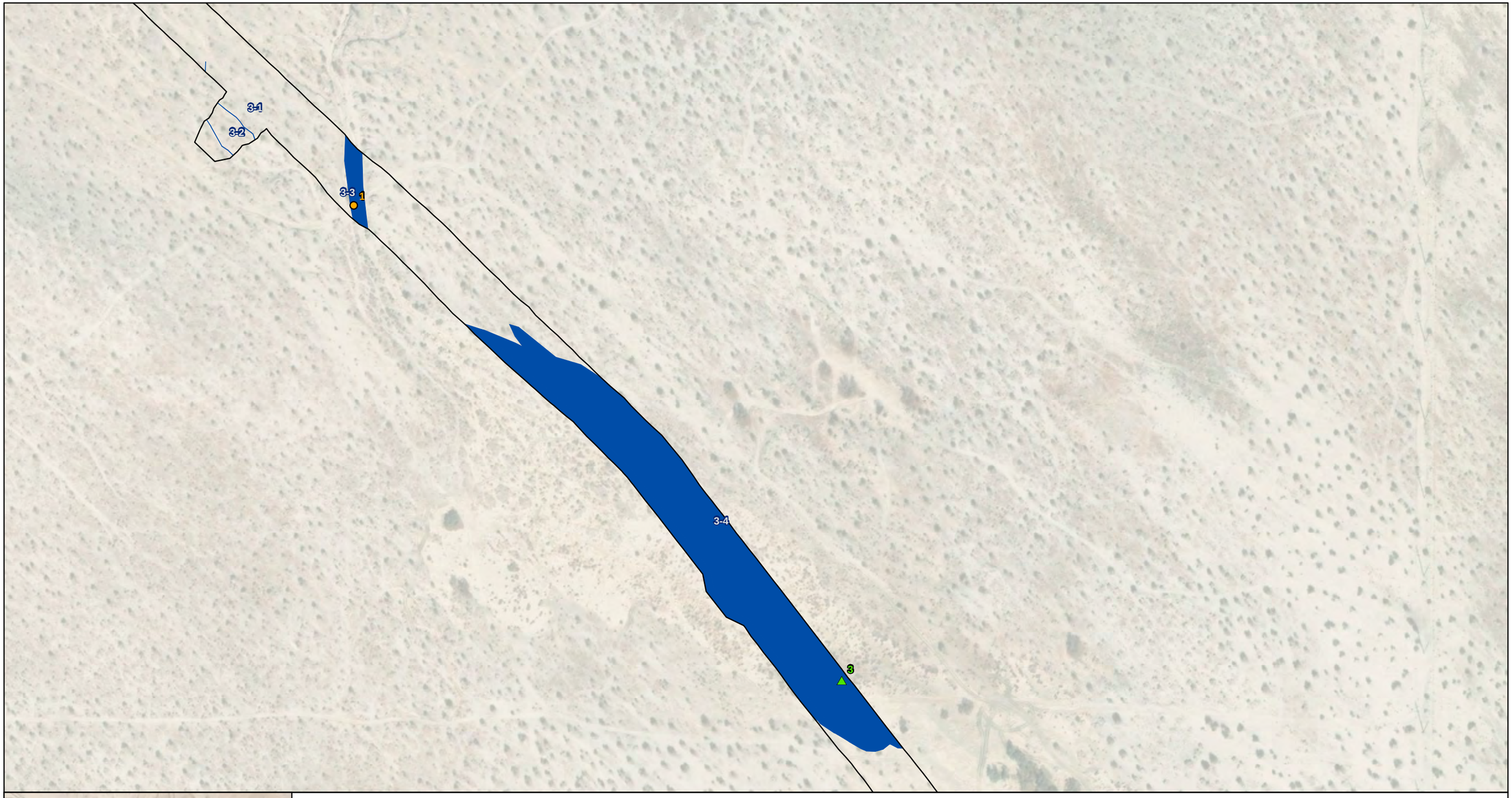


Image Source: DigitialGlobe, 2018

Review Area

Non-wetland Waters of the U.S. (15.1 ac)

X-X Drainage Number

Sample Location

Ordinary High Water Mark

Wetland Sample Location

X-X Data Sheet Number

100 0 200 Feet

Data Source: Field Surveys Conducted by Justin Wood and Chris Huntley on December 19 and 20, 2018, February 22, March 18, 19, and September 16, 2019.

Figure 5g.

Aquatic Resources Delineation Map

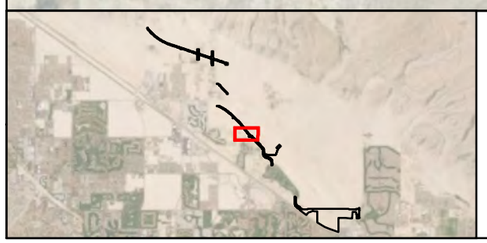


Image Source: DigitialGlobe, 2018

Review Area

Non-wetland Waters of the U.S. (15.1 ac)

X-X Drainage Number

Sample Location

Ordinary High Water Mark

100 0 200 Feet

Data Source: Field Surveys Conducted by Justin Wood and Chris Huntley on December 19 and 20, 2018, February 22, March 18, 19, and September 16, 2019.

Figure 5h.

Aquatic Resources Delineation Map

Image Source: DigitialGlobe, 2018

Review Area

Non-wetland Waters of the U.S. (15.1 ac)

XX Drainage Number

100 0 200 Feet

Data Source: Field Surveys Conducted by Justin Wood and Chris Huntley on December 19 and 20, 2018, February 22, March 18, 19, and September 16, 2019.

Figure 5i.

Aquatic Resources Delineation Map

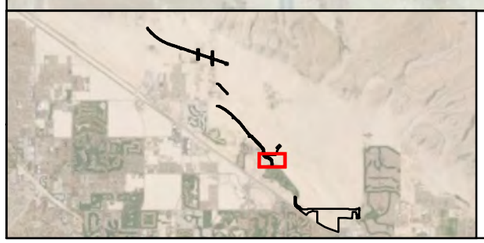


Image Source: DigitialGlobe, 2018

Review Area

Non-wetland Waters of the U.S. (15.1 ac)

XnX Drainage Number

100 0 200 Feet

Data Source: Field Surveys Conducted by Justin Wood and Chris Huntley on December 19 and 20, 2018, February 22, March 18, 19, and September 16, 2019.

Figure 5j.

Aquatic Resources Delineation Map

Image Source: DigitialGlobe, 2018

Review Area

Non-wetland Waters of the U.S. (15.1 ac)

100 0 200
Feet

Data Source: Field Surveys Conducted by Justin Wood and Chris Huntley on December 19 and 20, 2018, February 22, March 18, 19, and September 16, 2019.

Figure 5k.

Aquatic Resources Delineation Map

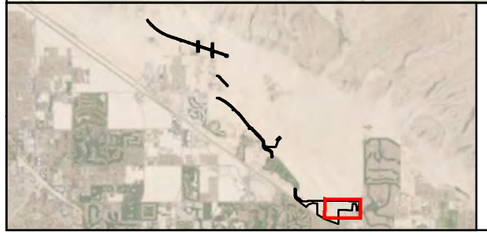


Image Source: DigitialGlobe, 2018

Review Area

Non-wetland Waters of the U.S. (15.1 ac)

Sample Location

Ordinary High Water Mark

100 0 200 Feet

Data Source: Field Surveys Conducted by Justin Wood and Chris Huntley on December 19 and 20, 2018, February 22, March 18, 19, and September 16, 2019.

Figure 5l.

Aquatic Resources Delineation Map

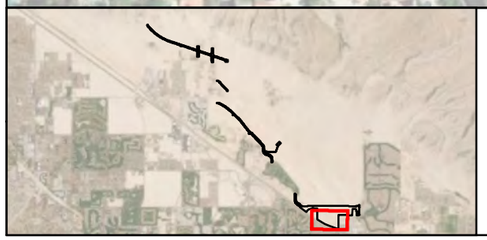


Image Source: DigitialGlobe, 2018

100 0 200 Feet

Review Area

Non-wetland Waters of the U.S. (15.1 ac)

Data Source: Field Surveys Conducted by Justin Wood and Chris Huntley on December 19 and 20, 2018, February 22, March 18, 19, and September 16, 2019.

Figure 5m.

Aquatic Resources Delineation Map

Pre-Hurricane Kathleen
(1976)

CSUSB

Post-Hurricane Kathleen
(1977 / 1978)

CSUSB

Study Area

RIVERSIDE
COUNTY

USGS 7.5' Quadrangles: Cathedral City & Myoma

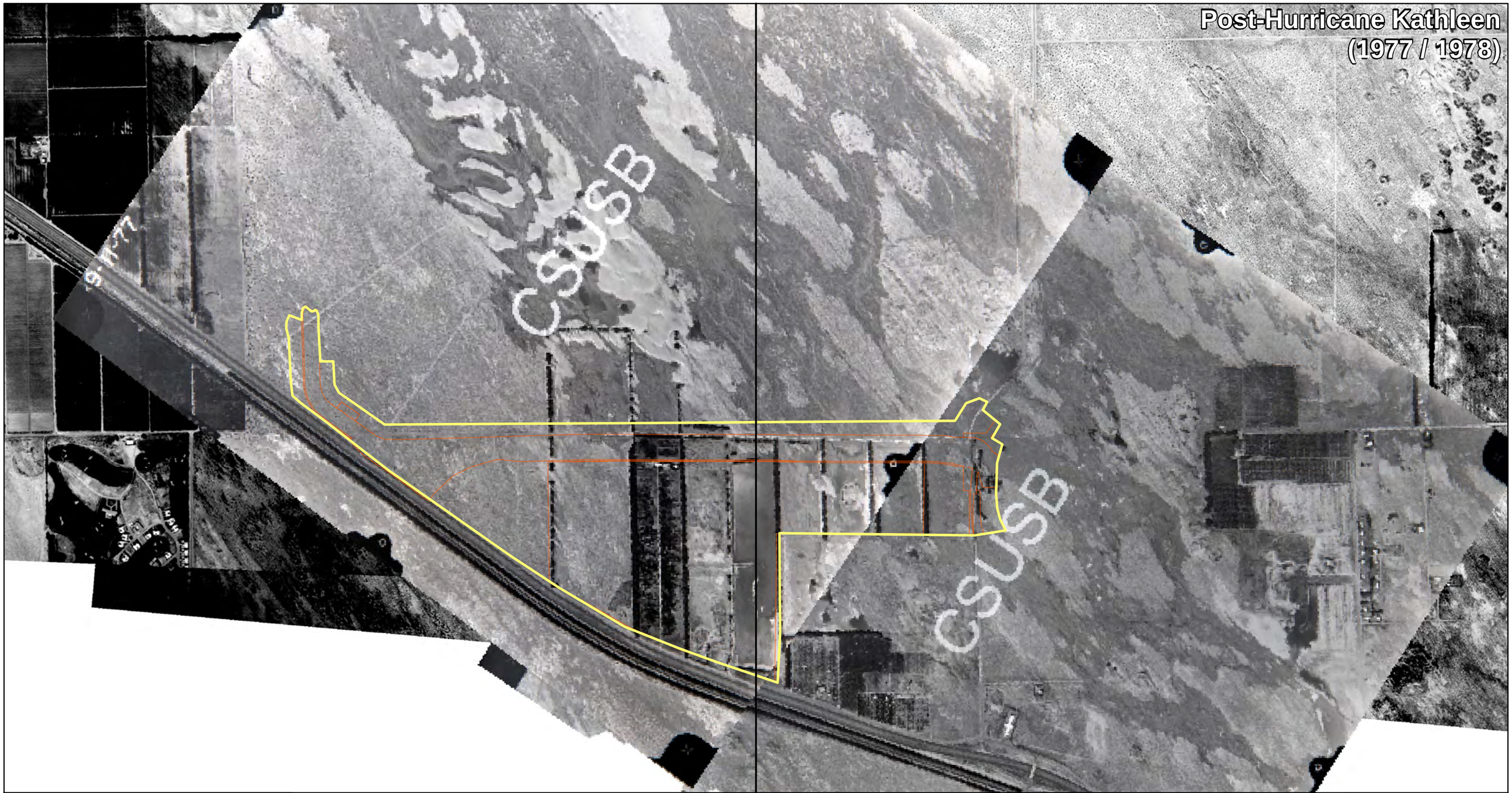
1,000 0 1,000
Feet

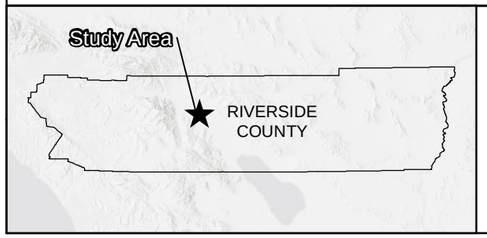
Project Area

Review Area

Figure 6a.

Reaches 2 & 3
Historical Aerial Images





USGS 7.5' Quadrangles: Cathedral City & Myoma

1,000 0 1,000
Feet

Project Area

Review Area

Figure 6b.

Reach 4
Historical Aerial Images

Attachment B – Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: 1000 Palms City/County: Thousand Palms / RIV Sampling Date: 3-19

Applicant/Owner: CVWD State: CA Sampling Point: 1

Investigator(s): J. Wood Section, Township, Range: S8, T4S, R6E

Landform (hillslope, terrace, etc.): Bajada Local relief (concave, convex, none): none Slope (%): ±1

Subregion (LRR): West Range Lat: 11 S 556802 mE Long: 3744214 mN Datum:

Soil Map Unit Name: Carsitas rabbly NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ● No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ● No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ○ No ●

Hydric Soil Present? Yes ○ No ●

Wetland Hydrology Present? Yes ● No ○

Is the Sampled Area within a Wetland? Yes ○ No ●

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Psorothamnus spinosus	5	Y	N/A
2.			
3.			
4.			
Total Cover:	5 %		
Sapling/Shrub Stratum			
1. Ambrosia salsola	5	Y	N/A
2. Petalonyx thurberi	2	Y	N/A
3.			
4.			
5.			
Total Cover:	7 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	0 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 100 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ●

Remarks:

SOIL

Sampling Point:)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-14	7.5YR 5/2	100	—	—	—	—	Sand	some gravel up to 1"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ○ No ●

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ● No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: 1600 Palms | City/County: Thousand Palms / RIV. | Sampling Date: 3/19

Applicant/Owner: CVWD | State: CA | Sampling Point: 2

Investigator(s): J. Wood | Section, Township, Range: S16, T4S, R6E

Landform (hillslope, terrace, etc.): Lower bajada | Local relief (concave, convex, none): none | Slope (%): <1%

Subregion (LRR): West Range | Lat: 11 S 558668 mE | Long: 3742308 mN | Datum:

Soil Map Unit Name: Carsitas gravelly | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ● No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ● No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ●	
Hydric Soil Present?	Yes ○	No ●	**Is the Sampled Area within a Wetland?** Yes ○ No ●
Wetland Hydrology Present?	Yes ●	No ○	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0 %		
Sapling/Shrub Stratum			
1. Larrea tridentata	5	Y	N/A
2. Atriplex canescens	5	Y	N/A
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. Schismus barbatus (?)	10	Y	N/A
2. Abronia villosa	5	Y	N/A
3. Gnaphalium canescens	5	Y	N/A
4. Brassica tournefortii	5	Y	N/A
5.			
6.			
7.			
8.			
Total Cover:	25 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 75 % | % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ●

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-18	7.5YR 6/3	100	—	—	—	—	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ☒ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: 1000 Palms City/County: Thousand Palms / RIV. Sampling Date: 3-19

Applicant/Owner: CVWD State: CA Sampling Point: 3

Investigator(s): J. Wood Section, Township, Range: S21, T4S, R6E

Landform (hillslope, terrace, etc.): Sand field Local relief (concave, convex, none): none Slope (%): <1%

Subregion (LRR): West Range Lat: 11 S 559410 8 mE Long: 3740801 m N Datum:

Soil Map Unit Name: Myoma Fine NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ● No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ● No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ○ No ●

Hydric Soil Present? Yes ○ No ●

Wetland Hydrology Present? Yes ● No ○

Is the Sampled Area within a Wetland? Yes ○ No ●

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarisk aphylla (?)	5	Y	FAC
2.			
3.			
4.			
Total Cover:	5 %		
Sapling/Shrub Stratum			
1. —			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. Chenopodium album ?	5	N	FACU
2. Bromus tomentellus	50	Y	N/A
3. Sisymbrium irio	10	N	N/A
4. Schismus barbatus	5	N	N/A
5.			
6.			
7.			
8.			
Total Cover:	70 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	5	x 3 =	15
FACU species	5	x 4 =	20
UPL species		x 5 =	
Column Totals:	10 (A)		35 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ●

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	7.5YR 3/2	100	—		—	—	Silty sand	
4-10	5YR 3/4	100	—		—	—	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ●

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches): _____

Water Table Present? Yes ○ No ● Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Attachment C – Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream:
Investigator(s): Justin Wood

Date: 3/19/2019 **Time:** 7:20
Town: Thousand Palms **State:** CA
Photo begin file#: 1 **Photo end file#:** 2

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Reach 1 - North of Thousand Palms

Projection: **Datum:**
Coordinates:

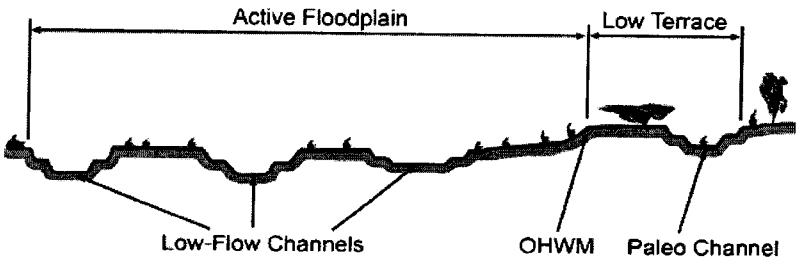
Potential anthropogenic influences on the channel system:
28th Avenue cuts off drainage at north. Various debris piles in vicinity. Concrete pad altering flows downstream.

Brief site description:
NW end of Reach 1. Near old developed lot and S of water tower.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 6/1996 through 8/2018
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☒ Rainfall/precipitation maps
- ☒ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

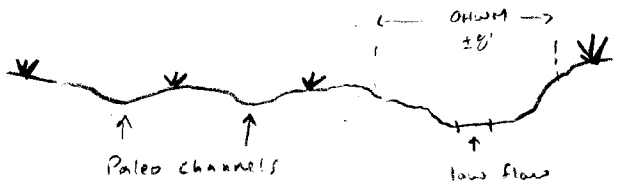


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ GPS
   - ☐ Digitized on computer
   - ☐ Other:

Project ID: 3219 **Cross section ID:** 1-1 **Date:** 3/19 **Time:** 7:20

Cross section drawing:



OHWM

GPS point: 11 S 555162.02 mE 3745090.82 mN

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Poorly defined OHWM. Measured to break in slope at old terrace.

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 S 555162.01 mE 3745090.97 mN

Characteristics of the floodplain unit:

Average sediment texture: Fine Sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: 20 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [x] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Poorly defined low-flow channel.

Two paleo channels to the W.

Project ID: 3219 **Cross section ID:** 1-1 **Date:** 3/19 **Time:** 7:20

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 555148.52 mE 3745092.46 m N

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-2
Investigator(s): J. Wood

Date: 3/19/2019 **Time:** 7:33
Town: Thousand Palms **State:** CA
Photo begin file#: 3 **Photo end file#:** 4

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Reach 1 - North of Thousand Palms

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

28th Ave. to N is altering flows. Evidence of increase flow in the past present.

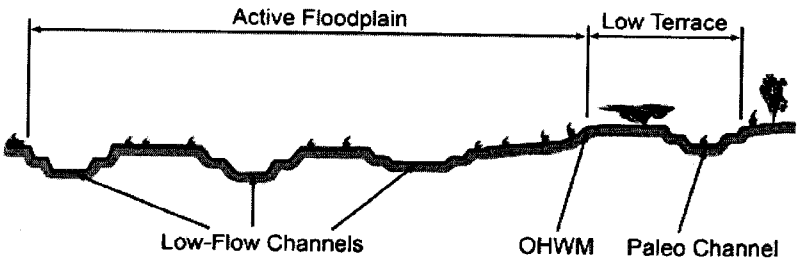
Brief site description:

NW end of Reach 1, near old development roads, S of 28th and water tower

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 6/1996 through 8/2019
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☒ Rainfall/precipitation maps
- ☒ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

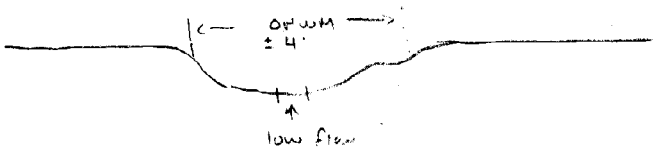


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ GPS
   - ☐ Digitized on computer
   - ☐ Other:

Project ID: 3219 **Cross section ID:** 1-2 **Date:** 3/19 **Time:** 7:33

Cross section drawing:



OHWM

GPS point: 11S 555216.00 m E 3745027.00 m N

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Poorly defined OHWM. Relict banks present. No clear evidence of recent flow.

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11S 555216.89 m E, 3745027.97 m N.

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: 35 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [x] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 1-2 **Date:** 3/19 **Time:** 7:33

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11 S 555215.07 m E, 3745029.05 m N

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: _____ % Tree: _____ % Shrub: 15 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-3
Investigator(s): J. Wood

Date: 3/19 **Time:** 7:38
Town: Thousand Palms **State:** CA
Photo begin file#: 5 **Photo end file#:** 6

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:
Reach 1 - North of Thousand Palms

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

28th Ave and shotgun debris along upstream flows.

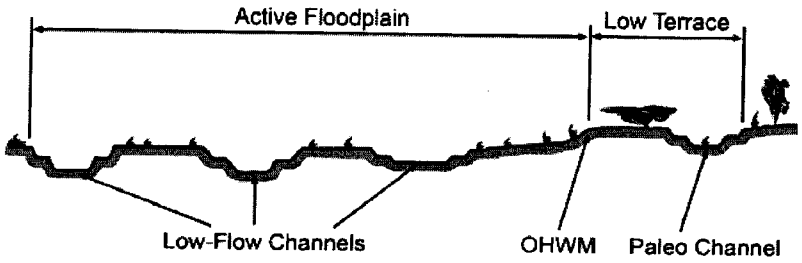
Brief site description:

NW end of Reach 1, SE of developed lots.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/1996 - 8/2018
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

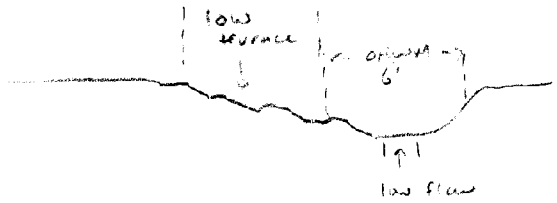


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-3 **Date:** 3/19 **Time:** 7:38

Cross section drawing:



OHWM

GPS point: 11 S 555247.0 m E, 3741995.0 m N

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Poorly defined OHWM. Flows may be divided channels.

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: 10 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [x] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 1-3 **Date:** 3/19 **Time:** 7:38

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11 S 555251.66 mE, 3744993.54 mN

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 30 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-4
Investigator(s): J. Wood

Date: 3/19 **Time:** 7:50
Town: Thousand Palms **State:** CA
Photo begin file#: 7 **Photo end file#:** 8

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:
Reach 1 - N of Thousand Palms

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

28th Ave to N

This drainage seems to be carrying most flows from 28th Ave,

Brief site description:

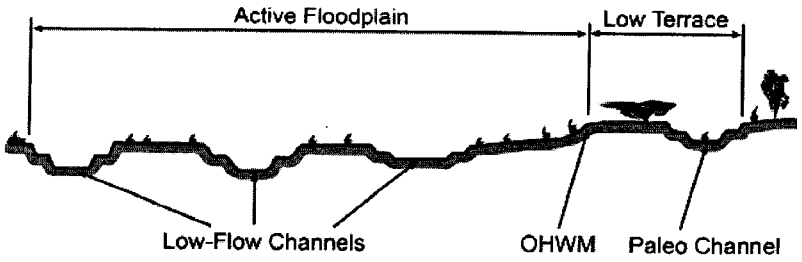
NW end of Reach 1, just E of developed area.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 8/18
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

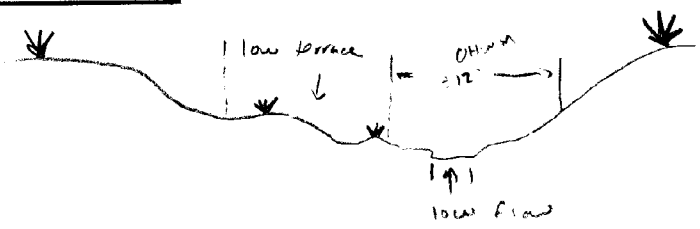


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-4 **Date:** 3/19 **Time:** 7:50

Cross section drawing:



OHWM

GPS point: 11 S 555473.13 m E, 3744829.59 m N

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Clearly defined sediment size transition at OHWM

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 S 555472.9 m E 3744829.7 m N

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: 30 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [x] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Evidence of recent flows, ± 2' wide.

Project ID: 3219 **Cross section ID:** 1-4 **Date:** 3/19 **Time:** 7:50

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 555428.27 mE, 3744828.62 mN

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Out of OHWM.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-5
Investigator(s): J Ward

Date: 3/19
Town: Thousand Palms
Photo begin file#: 9

Time: 8:03
State: CA
Photo end file#: 10

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:
Reach 1 - W of Thousand Palms

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

78 th Ave. to W may be increasing storm flows in channel

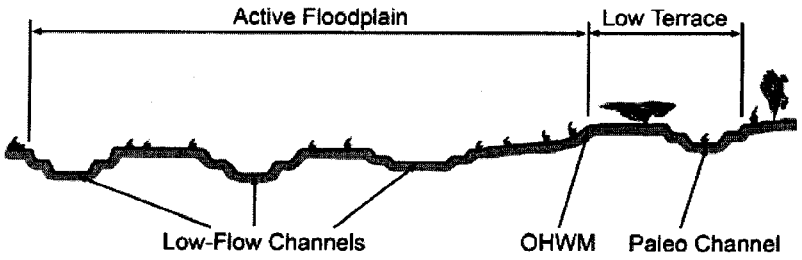
Brief site description:

NW End of Reach 1, just W of pipeline.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 8/18
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

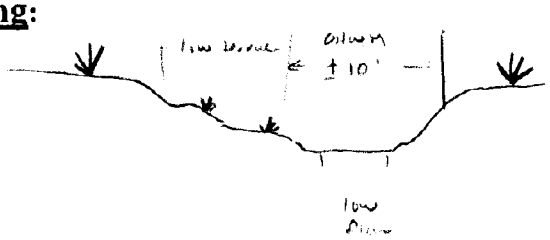


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-5 **Date:** 3/19 **Time:** 8:03

Cross section drawing:



OHWM

GPS point: 11S 555613.92 mE 3744690.36 mN

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

clearly defined OHWM

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11S 555614.02 mE 3744689.81 mN

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: 10 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [x] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

low flow channel has evidence of recent flows, ± 6' wide.

Project ID: 3219 **Cross section ID:** 1-S **Date:** 3/19 **Time:** 8:03

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 555619.69 mE 3744689.91 mN

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-6
Investigator(s): J. Wood

Date: 3/19 **Time:** 8:15
Town: Thousand Palms **State:** CA
Photo begin file#: 11 **Photo end file#:** 12

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:
Reach 1 - N of Thousand Palms

Projection: **Datum:**
Coordinates:

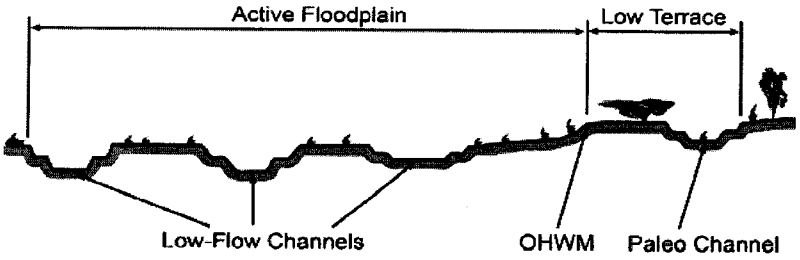
Potential anthropogenic influences on the channel system:
2nd Ave and pipeline upstream may be causing flows.

Brief site description:
Reach 1 - just E of pipeline

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 8/18
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

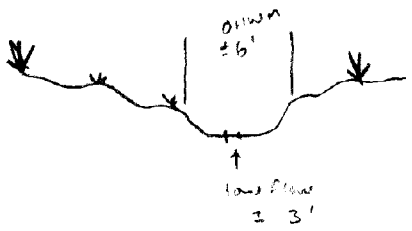


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-6 **Date:** 3/19 **Time:** 8.15

Cross section drawing:



OHWM

GPS point: 11 S 555843.17 mE, 3744557.66 m N

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 S 555843.91 m E, 3744558.09 m N

Characteristics of the floodplain unit:

Average sediment texture: Fine Sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: 10 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [x] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 1-6 **Date:** 3/19 **Time:** 6:15

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11 S 555847.6 m E 3744558.48 m N

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: ____ % Tree: ____ % Shrub: 20 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: ____ % Tree: ____ % Shrub: ____ % Herb: ____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-7
Investigator(s): J. Wood

Date: 3/19 **Time:** 8:27
Town: Thousand Palms **State:** CA
Photo begin file#: 13 **Photo end file#:** 14

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details: Reach 1 - 0.2 mi E of pipeline

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

28 th Ave may be influencing flows in this channel.

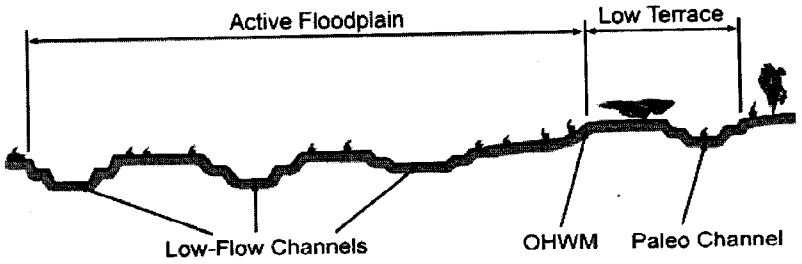
Brief site description:

Reach 1 - about 0.2 miles E of pipeline, 0.2 miles W of Sierra Del Sol.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 8/18
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

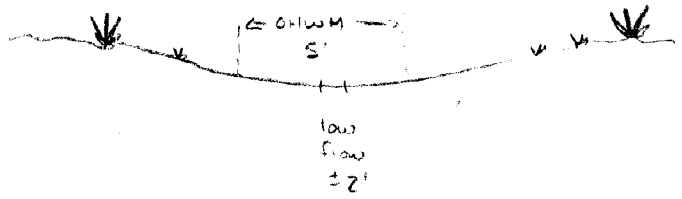


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [ ] Digitized on computer
   - [X] GPS
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-7 **Date:** 3/19 **Time:** 8:27

Cross section drawing:



OHWM

GPS point: 11 S 556151.6 m E, 3744429.08 m N

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [ ] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Broader to the north and narrower in the south

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 S 556153.95 m E, 3744429.51 m N

Characteristics of the floodplain unit:

Average sediment texture: Medium silt

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: 5 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [x] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

low-flow is deeply incised, ±6'.

Project ID: 3219 **Cross section ID:** 1-7 **Date:** 3/19 **Time:** 8:27

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 556162.7 mE, 3744431.81 mN

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: _____ % Tree: _____ % Shrub: 15 % Herb: 35 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms	**Date:** 3/19	**Time:** 8:55	
Project Number: 3219	**Town:** Thousand Palms	**State:** CA	
Stream: 1-8	**Photo begin file#:** 15	**Photo end file#:** 16	
Investigator(s): J. Wood			

Y [x] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [x] Is the site significantly disturbed?

Location Details: Reach 1 - E of Sierra Del Sol

Projection: **Datum:**

Coordinates:

Potential anthropogenic influences on the channel system:

Sierra Del Sol upstream may be altering flows

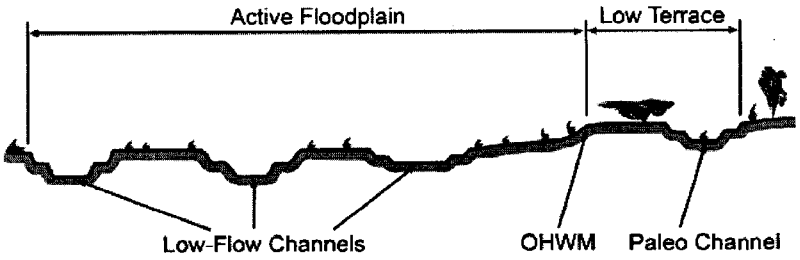
Brief site description:

Just E of Sierra Del Sol, Western half of Reach 1

Checklist of resources (if available):

- [x] Aerial photography
  Dates: 6/96 - 8/18
- [x] Topographic maps
- [ ] Geologic maps
- [x] Vegetation maps
- [x] Soils maps
- [x] Rainfall/precipitation maps
- [x] Existing delineation(s) for site
- [x] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

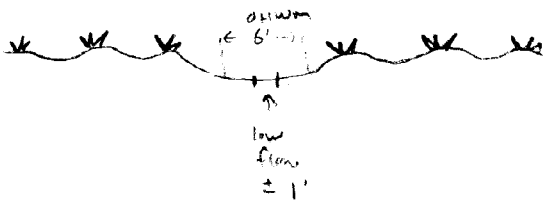


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [x] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-8 **Date:** 3/19 **Time:** 8:55

Cross section drawing:



OHWM

GPS point: 11 S 556699.6 mE, 3744256.79 mN

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Poorly defined limits because of sand hummocks.

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 S 556699.38 m E, 3744256.83 m N

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: 5 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [x] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Defined upstream but disappears downstream

Project ID: 3219 **Cross section ID:** 1-8 **Date:** 3/19 **Time:** 8:55

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 556695.76 m E, 3744255.76 m N

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: ____ % Tree: ____ % Shrub: 15 % Herb: 25 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: ____ % Tree: ____ % Shrub: ____ % Herb: ____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-9
Investigator(s): J. Ward

Date: 3/19
Town: Thousand Palms
Photo begin file#: 17

Time: 9:06
State: CA
Photo end file#: 18

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:
Reach 1 - 0.13 mi E of Sierra Del Sol

Projection: **Datum:**
Coordinates:

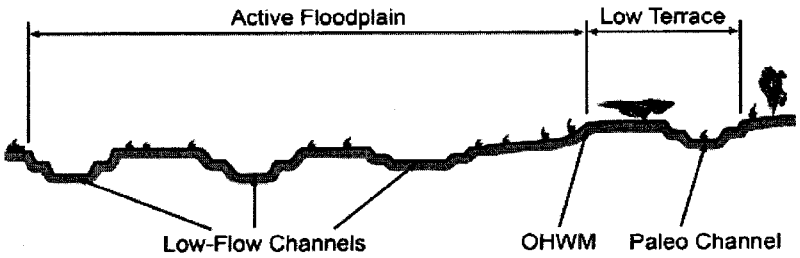
Potential anthropogenic influences on the channel system:

Brief site description:
E of Sierra Del Sol, West end of Reach 1

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 8/18
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

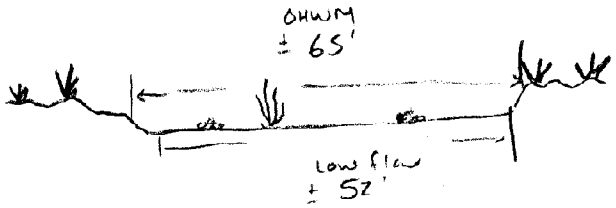


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [ ] Digitized on computer
   - [X] GPS
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-9 **Date:** 3/19 **Time:** 9:06

Cross section drawing:



OHWM

GPS point: 11S 556810.22 mE, 3744219.27 mN

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Poorly defined, sediment deposits on bank.

GPS point recorded on E bank.

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 556802.63 mE 3744221.3 mN

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: ____ % Tree: 5 % Shrub: ____ % Herb: 5 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [x] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Broad wash with smoke tree and cheesebush.

Low flow splits downstream

Project ID: 3219 **Cross section ID:** 1-9 **Date:** 3/19 **Time:** 9:06

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11 S 556811.95 mE, 3744220.30 mN

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: I-10
Investigator(s): J. Wood

Date: 3/19 **Time:** 9:20
Town: Thousand Palms **State:** CA
Photo begin file#: 19 **Photo end file#:** 26

Y [x] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [x] Is the site significantly disturbed?

Location Details:
Reach 1

Projection: **Datum:**
Coordinates:

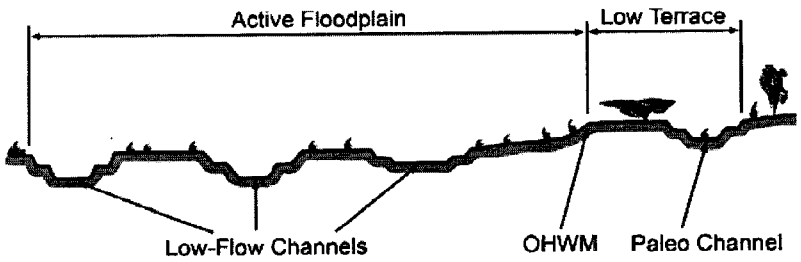
Potential anthropogenic influences on the channel system:

Brief site description:
Reach 1. 0.18 miles E of Sierra Del Sol.

Checklist of resources (if available):

- [x] Aerial photography
  Dates: 6/96 through 8/18
- [x] Topographic maps
- [ ] Geologic maps
- [x] Vegetation maps
- [x] Soils maps
- [x] Rainfall/precipitation maps
- [x] Existing delineation(s) for site
- [x] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

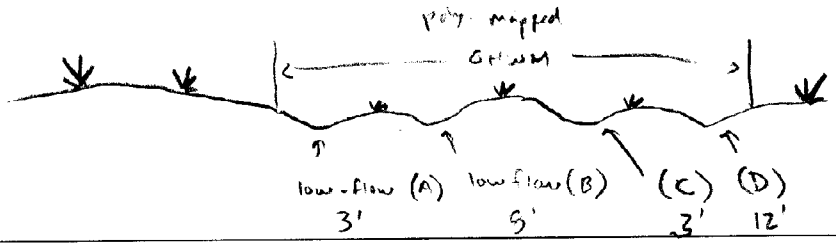


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [x] GPS
   - [x] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-10 **Date:** 3/19 **Time:** 9:20

Cross section drawing:



OHWM

GPS point: 11 S 556863.11 m E, 3744260.07 m N

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

OHWM extends roughly 90 feet and includes four low-flow channels.

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 S 556864.31 m E, 3744199.76 m N

Characteristics of the floodplain unit:

Average sediment texture: Cobble

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: 5 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [x] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

This data represents one low flow channel but conditions are similar for all four.

Project ID: 3219 **Cross section ID:** 1-10 **Date:** 3/19 **Time:** 9:20

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 556862.3 m E, 3744199.91 mN

Characteristics of the floodplain unit:

Average sediment texture: Coarse Sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 25 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-11
Investigator(s): J. Wood

Date: 3/19
Town: Thousand Palms
Photo begin file#: 27

Time: 9:25
State: CA
Photo end file#: 28

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details: Ranch 1

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

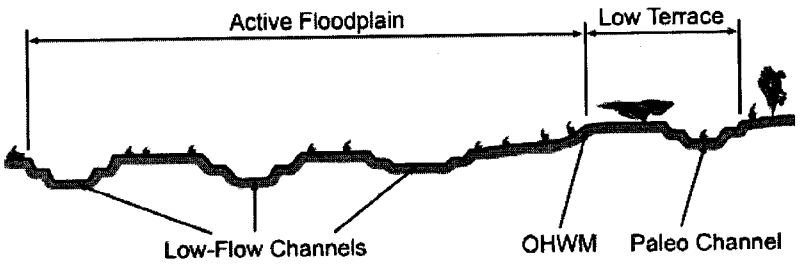
Brief site description:
Ranch 1. 0.19 miles E of Sierra Del Sol

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 8/18
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

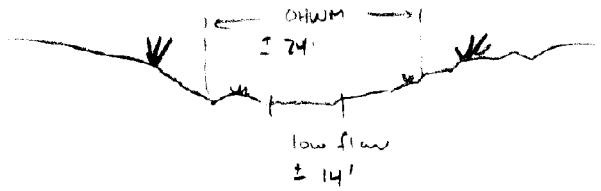


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] Digitized on computer
   - [X] GPS
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-11 **Date:** 3/19 **Time:** 9:25

Cross section drawing:



OHWM

GPS point: 11 S 556903.39 mE 5744187.45 mN

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit:

[x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: _____ % Tree: _____ % Shrub: 5 % Herb: 5 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [x] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 1-11 **Date:** 3/19 **Time:** 9:25

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 556901.18 mE, 3744187.44 mN

Characteristics of the floodplain unit:

Average sediment texture: Coarse Sand

Total veg cover: _____ % Tree: _____ % Shrub: 25 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-12
Investigator(s): J. Ward

Date: 3/19
Town: Thousand Palms
Photo begin file#: 29
Time: 9:30
State: CA
Photo end file#: 30

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:
Reach 1

Projection:
Datum:
Coordinates:

Potential anthropogenic influences on the channel system:

None

Brief site description:

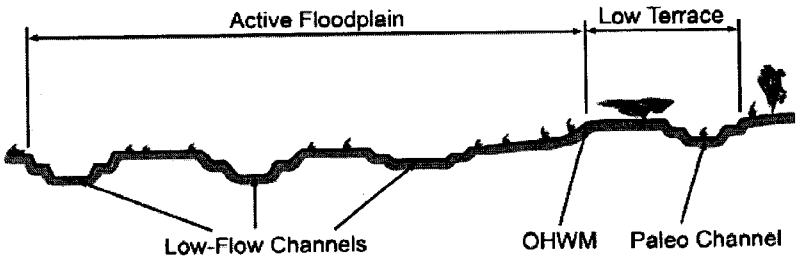
Reach 1 - approx. 0.2 mi E. of Sierra Del Sol

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 8/18
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

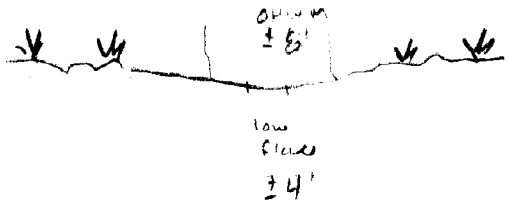


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [X] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-12 **Date:** 3/19 **Time:** 9:30

Cross section drawing:



OHWM

GPS point: 11 S 556925.31 mE 3744160.16 mN

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 S 556930.83 mE 3744183.84 mN

Characteristics of the floodplain unit:

Average sediment texture: Medium silt

Total veg cover: ____ % Tree: ____ % Shrub: 5 % Herb: 5 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [x] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Overflow from 1-11 to W.

Project ID: 3219 **Cross section ID:** 1-12 **Date:** 3/19 **Time:** 9:30

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11 S 556930.18 m E. 3744179.16 m N

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-13
Investigator(s): J. Wood

Date: 3/19 **Time:** 9:40
Town: Thousand Palms **State:** CA
Photo begin file#: 31 **Photo end file#:** 32

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [X] / N [ ] Is the site significantly disturbed?

Location Details: Reach 1

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:
Dirt road runs parallel to and crosses through the drainage.

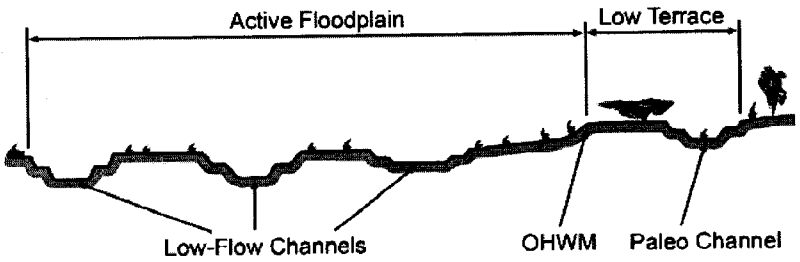
Brief site description:
Reach 1 0.24 miles E of Sierra Del Sol

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/16 - 8/18
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

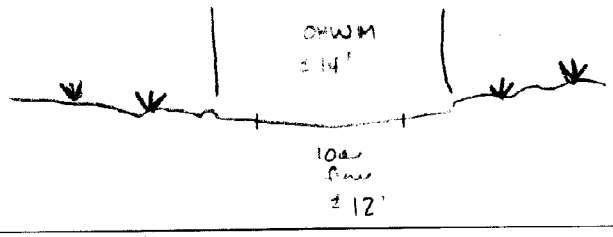


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [X] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-13 **Date:** 3/16 **Time:** 9:46

Cross section drawing:



OHWM

GPS point: 11S 556980.65 mE 3744158.91 m N

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Road enters from SW and leaves to NE and is altering flow paths.

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 S 556977.56 mE 3744159.77 mN

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: ____ % Tree: ____ % Shrub: 5 % Herb: 5 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [x] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [x] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 1-13 **Date:** 3/19 **Time:** 9:40

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 556965.27 m E, 3744164.44 m N

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: I-14
Investigator(s): J. Ward

Date: 3/19
Town: Thousand Palms
Photo begin file#: 33
Time: 10:10
State: CA
Photo end file#: 38

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:
Reach 1

Projection:
Datum:
Coordinates:

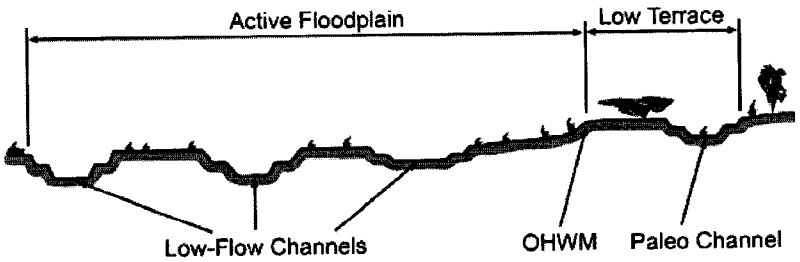
Potential anthropogenic influences on the channel system:
Flows channelized from upstream development.

Brief site description:
Reach 1 - Just E of Desert Moon Dr.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 8/18
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

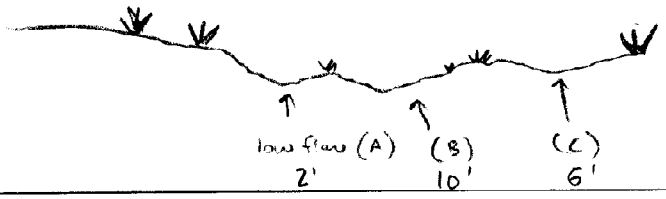


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] Digitized on computer
   - [X] GPS
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-14 **Date:** 3/19 **Time:** 10:10

Cross section drawing:



OHWM

GPS point: 11S 557624.19 mE 3743955.46 mN

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Broad wash with several high areas

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11S 557604.31 mE 3743960.21 mN

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: ____ % Tree: ____ % Shrub: 10 % Herb: 10 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [x] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

three distinct braids of low flow channel, conditions here reflect all three low flow channels.

Project ID: 3219 **Cross section ID:** 1-14 **Date:** 3/19 **Time:** 10:10

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 557600.1 mE 3743962.0 m N

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-15
Investigator(s): J. Wood

Date: 3/19
Town: Thousand Palms
Photo begin file#: 39

Time: 10:15
State: CA
Photo end file#: 40

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:
Reach 1

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

Upstream development may be channelizing flows

Brief site description:

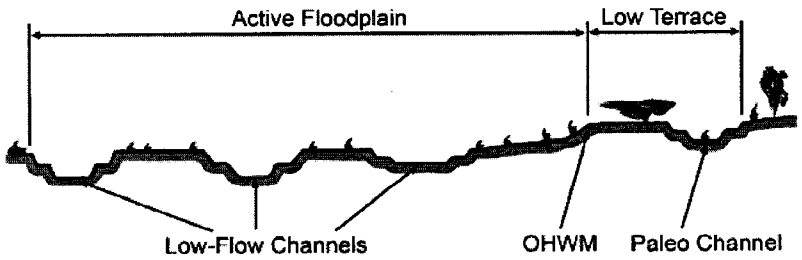
Reach 1, 0.16 miles E of Desert Moon Dr.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 5/18
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

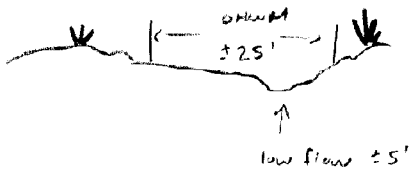


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [X] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-15 **Date:** 3/9 **Time:** 10:15

Cross section drawing:



OHWM

GPS point: 11 S 557634 m E, 3743948 m N

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit:

[x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 S 557638.37 m E, 3743947.75 m N

Characteristics of the floodplain unit:

Average sediment texture: fine sand

Total veg cover: ____ % Tree: ____ % Shrub: 5 % Herb: 10 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [x] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [x] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 1-15 **Date:** 3/19 **Time:** 10:15

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 557632 mE, 3743948 mN

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-16
Investigator(s): J. Wood

Date: 3/19
Town: Thousand Palms
Photo begin file#: 41
Time: 10:30
State: CA
Photo end file#: 42

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [X] / N [ ] Is the site significantly disturbed?

Location Details:
Reach 1

Projection:
Datum:
Coordinates:

Potential anthropogenic influences on the channel system:

Dirt road in channel may be over exaggerating the width.

Brief site description:

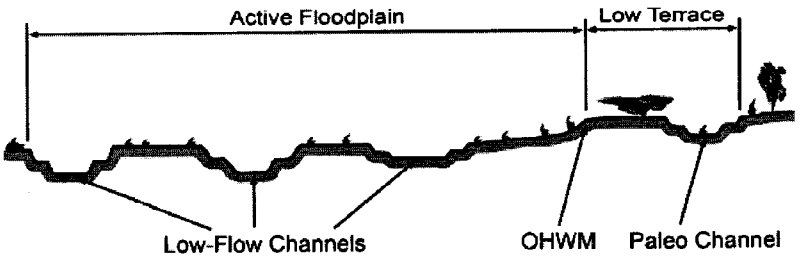
Reach 1 - 0.14 miles W of Via Las Palmas

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 8/16
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

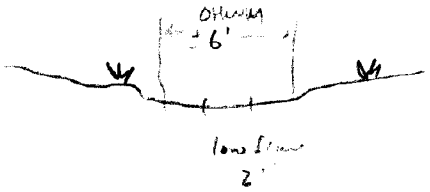


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [X] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-16 **Date:** 3/19 **Time:** 10:30

Cross section drawing:



OHWM

GPS point: 11 S 557743.99 m E 3743910.52 m N

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit:

[x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11S 557747 m E, 3743910 m N

Characteristics of the floodplain unit:

Average sediment texture: Fine Sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: 10 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 1-16 **Date:** 3/19 **Time:** 10:30

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 557739 mE 3743911.9 mN

Characteristics of the floodplain unit:

Average sediment texture: Coarse Sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 25 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-B
Investigator(s): J. Wood

Date: 3/19 **Time:** 10:40
Town: Thousand Palms **State:** CA
Photo begin file#: 43 **Photo end file#:** 46

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details: Reach 1

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

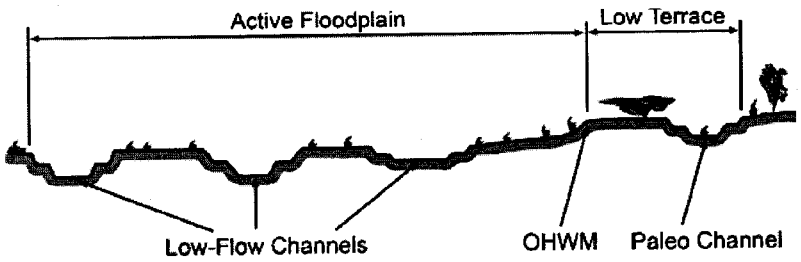
Brief site description:

Reach 1 - 0.1 miles W of Via Las Palmas.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 8/18
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

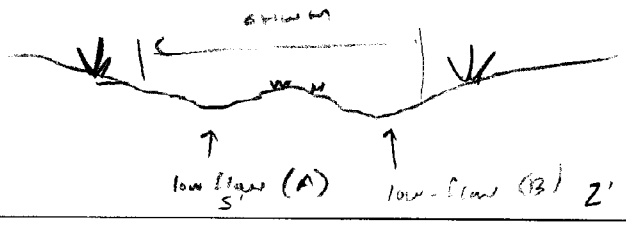


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [X] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-1B **Date:** 3/19 **Time:** 10:40

Cross section drawing:



OHWM

GPS point: 11S 557816 mE, 3743888 mN

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Poorly defined, decided to include non gravelly bed.

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11S 557816 mE, 3743888 mN

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: 5 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [x] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 1-18 **Date:** 3/19 **Time:** 10:40

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11 S 557829 mE, 3743885 mN.

Characteristics of the floodplain unit:

Average sediment texture: Coarse Sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-19
Investigator(s): J. Wood

Date: 3/19 **Time:** 10:50
Town: Thousand Palms **State:** CA
Photo begin file#: 47 **Photo end file#:** 50

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details: Reach 1

Projection: **Datum:**
Coordinates:

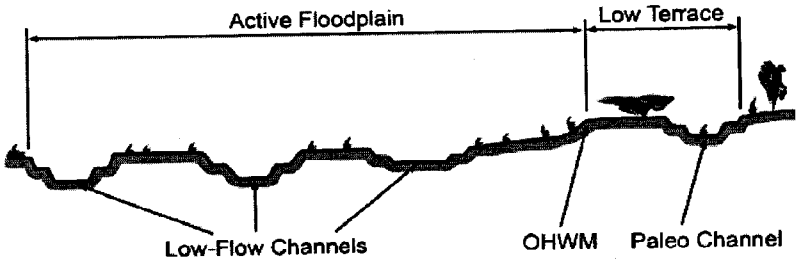
Potential anthropogenic influences on the channel system:

Brief site description:
Reach 1 - 0.08 mi S W of Via Las Palmas

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 6/96 - 8/18
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☒ Rainfall/precipitation maps
- ☒ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

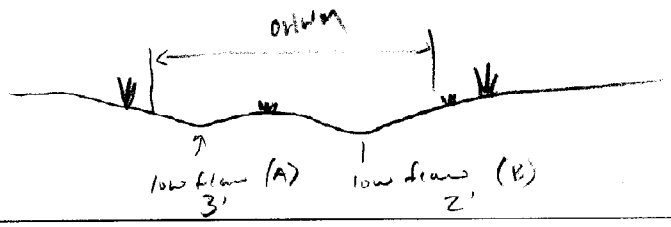


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☒ GPS
   - ☐ Other:

Project ID: 3219 **Cross section ID:** 1-19 **Date:** 3/19 **Time:** 10:50

Cross section drawing:



OHWM

GPS point: 11 S 557834, mE 3743882 mN

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Poorly defined, included one bench

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 S 557846 mE 3743880 mN

Characteristics of the floodplain unit:

Average sediment texture: Fine Sand

Total veg cover: ____ % Tree: ____ % Shrub: 5 % Herb: 5 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 1-19 **Date:** 3/19 **Time:** 10:50

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 557850 m E, 3743880 m N

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: _____ % Tree: _____ % Shrub: 15 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: I-21
Investigator(s): J. Ward

Date: 3/19
Town: Thousand Palms
Photo begin file#: 51

Time: 11:10
State: CA
Photo end file#: 56

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:
Reach 1

Projection:
Datum:
Coordinates:

Potential anthropogenic influences on the channel system:

Dirt road impacts a portion of the desert wash flow channel

Brief site description:

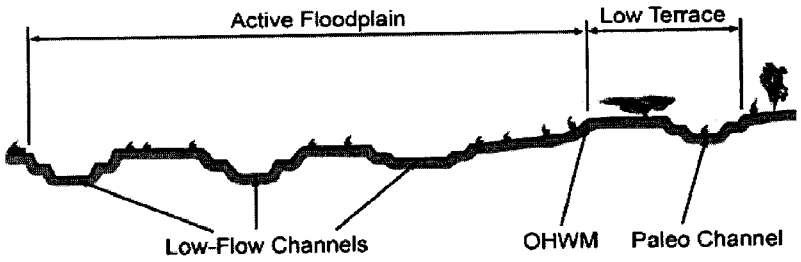
Reach 1 - large drainage ± 0.15 miles E of Via Las Palmas.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 8/16
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

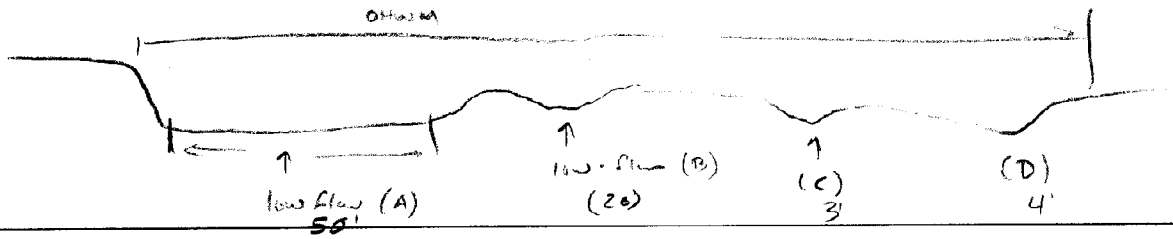


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [X] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-21 **Date:** 3/19 **Time:** 11:10

Cross section drawing:



OHWM

GPS point: 11S 558221, 3743754

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

OHWM is clearly defined and channel is deeply incised >2'

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11S 558229, 3743753

Characteristics of the floodplain unit:

Average sediment texture: Fine Sand

Total veg cover: _____ % Tree: _____ % Shrub: 5 % Herb: 10 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [x] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [x] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 1-21 **Date:** 3/19 **Time:** 11:10

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11 S 558214 . 3743756

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: _____ % Tree: _____ % Shrub: 25 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-22
Investigator(s): J. Wood

Date: 3/19
Town: Thousand Palms
Photo begin file#: 59

Time: 11:20
State: CA
Photo end file#: 62

Y [x] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [x] Is the site significantly disturbed?

Location Details: Reach 1

Projection:
Datum:
Coordinates:

Potential anthropogenic influences on the channel system:

None

Brief site description:

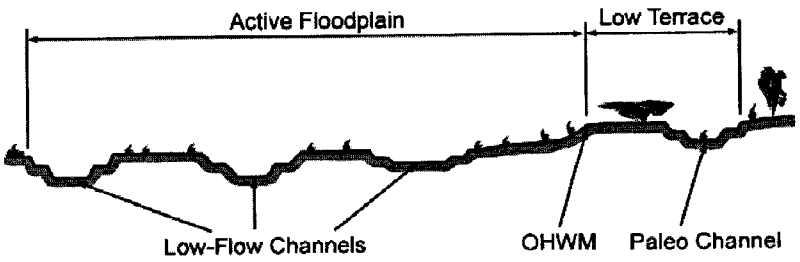
Reach 1 - 0.2 mile E of Via Las Palmas.

Checklist of resources (if available):

- [x] Aerial photography
  Dates: 6/96 - 8/18
- [x] Topographic maps
- [ ] Geologic maps
- [x] Vegetation maps
- [x] Soils maps
- [x] Rainfall/precipitation maps
- [x] Existing delineation(s) for site
- [x] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

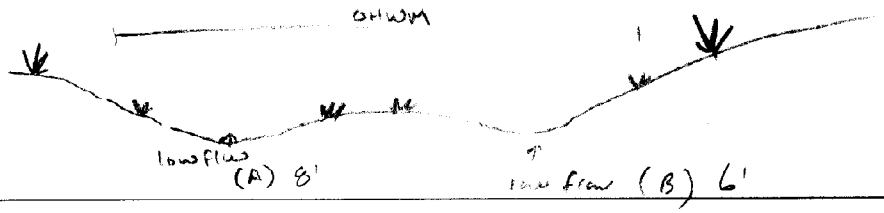


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [x] GPS
   - [x] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-72 **Date:** 3/19 **Time:** 11:20

Cross section drawing:



OHWM

GPS point: 11 S 558299, 3743733

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 S 558302, 3743732

Characteristics of the floodplain unit:

Average sediment texture: Fine Sand

Total veg cover: ____ % Tree: ____ % Shrub: 15 % Herb: 20 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [x] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [x] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 1-22 **Date:** 3/19 **Time:** 11:20

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 558323 mE, 3743725.48 mN

Characteristics of the floodplain unit:

Average sediment texture: Coarse Sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-23
Investigator(s): J. Wood

Date: 3/19 **Time:** 11:30
Town: Thousand Palms **State:** CA
Photo begin file#: 63 **Photo end file#:** 64

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details: Reach 1

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

None

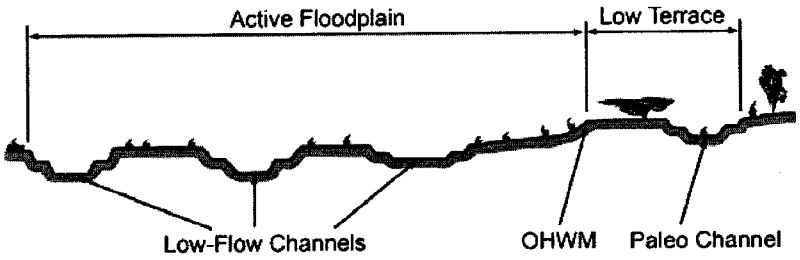
Brief site description:

Reach 1, 0.32 miles E of Via Las Palmas.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 8/16
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

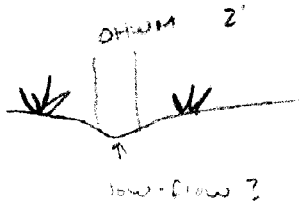


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [X] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-23 **Date:** 3/19 **Time:** 11:36

Cross section drawing:



OHWM

GPS point: 11 S 558493 mE, 3743670 mN

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Poorly developed OHWM. Additional gravel bar and swales in area

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 S 558491 mE, 3743671

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: _____ % Tree: _____ % Shrub: 10 % Herb: 10 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 1-24
Investigator(s): J. Wood

Date: 7/19
Town: Thousand Palms
Photo begin file#: 65

Time: 11:35
State: CA
Photo end file#: 68

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

None

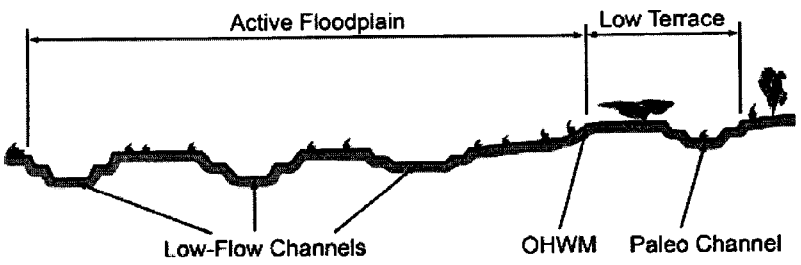
Brief site description:

Reach 1, approx. 0.3 miles E of Via Las Palmas.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 5/18
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

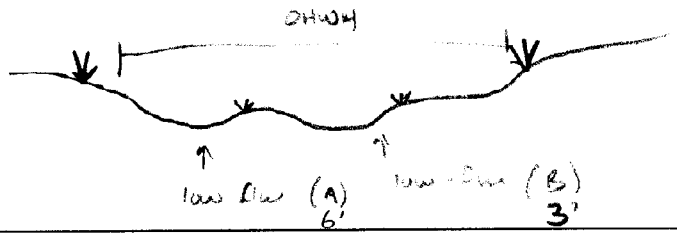


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [X] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-24 **Date:** 7/19 **Time:** 11:35

Cross section drawing:



OHWM

GPS point: 11 S 558519 3743657

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: 11 S 556522 , 3743656

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: _____ % Tree: _____ % Shrub: 5 % Herb: 10 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Two low flow channels within OHWM.

Project ID: 3219 **Cross section ID:** 1-24 **Date:** 3/19 **Time:** 11:35

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 558529 mE, 3743653 mN

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: _____ % Tree: _____ % Shrub: 15 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms | **Date:** 3/19 | **Time:** 11:40
Project Number: 32191 | **Town:** Thousand Palms | **State:** CA
Stream: I-25 | **Photo begin file#:** 69 | **Photo end file#:** 70
Investigator(s): J. Wood

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details: Reach 1

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

None

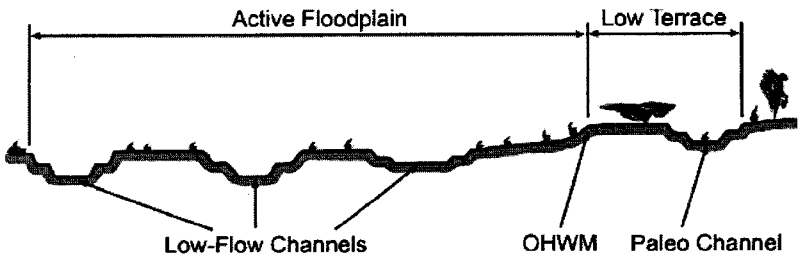
Brief site description:

Reach 1, approx. 0.36 mi E of Via Las Palmas

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 6/96 - 6/18
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [X] Rainfall/precipitation maps
- [X] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

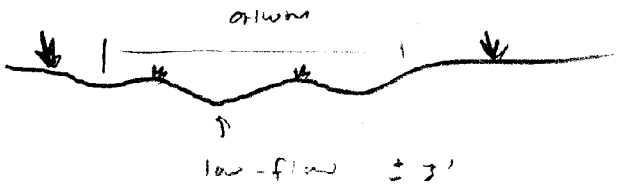


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [X] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 1-25 **Date:** 3/19 **Time:** 11:40

Cross section drawing:



OHWM

GPS point: 11 S 558559 mE, 3743648 mN

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Poorly defined

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11 S 558560 m E, 3743647 mN

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: _____ % Tree: _____ % Shrub: 10 % Herb: 10 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Several old braids, one active low flow

Project ID: 3219 **Cross section ID:** 1-25 **Date:** 3/19 **Time:** 11:40

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11 S 558556 m E, 3743648 m N

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: _____ % Tree: _____ % Shrub: 25 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: Z-1
Investigator(s): J. Wood

Date: 3/19 **Time:** 12:20
Town: Thousand Palms **State:** CA
Photo begin file#: 71 **Photo end file#:** 72

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:
Reach 2

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

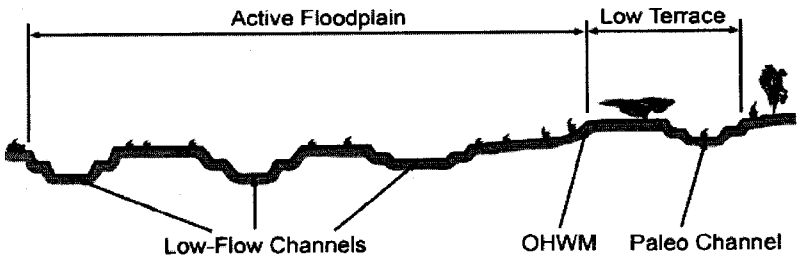
Some influence from roads on infrastructure upstream.

Brief site description:
Reach 2, just E of Vista Del Ora and 0.45 miles N of Ramon.

Checklist of resources (if available):

- [ ] Aerial photography
  Dates:
- [ ] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [ ] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [ ] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

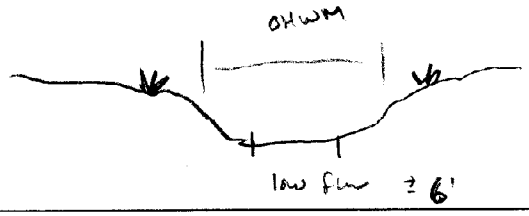


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [X] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 2-1 **Date:** 3/19 **Time:** 12:20

Cross section drawing:



OHWM

GPS point: 11 558265 mE, 3742712 mN

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: 11S 558263 mE, 3742710 mN

Characteristics of the floodplain unit:

Average sediment texture: Fine Sand

Total veg cover: ____ % Tree: ____ % Shrub: 5 % Herb: 70 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 7-1- **Date:** 3/19 **Time:** 12:20

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11 S 556269 3742715

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 70 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 2-2
Investigator(s): J. Ward

Date: 3/19 **Time:** 12:31
Town: Thousand Palms **State:** CA
Photo begin file#: 73 **Photo end file#:** 74

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details:
Reach 2

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

Some off road vehicle tracks and road in fringe.

Brief site description:

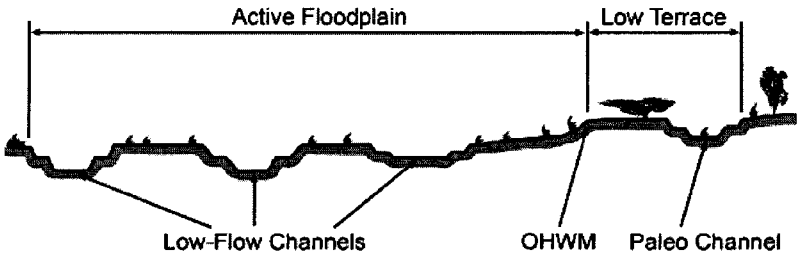
Reach 2, just NE of SCE substation

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 6/96 - 8/18
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☒ Rainfall/precipitation maps
- ☒ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

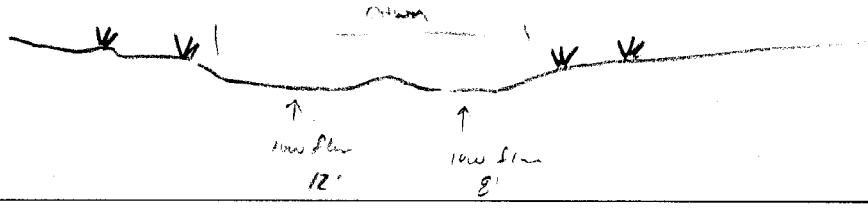


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☒ GPS
   - ☐ Other:

Project ID: 3219 **Cross section ID:** 2-2 **Date:** 3/19 **Time:** 12:31

Cross section drawing:



OHWM

GPS point: 11S 558455 mE, 3742498 mN.

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit:

[x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 11S 558461 mE, 3742501 mN

Characteristics of the floodplain unit:

Average sediment texture: Fine Sand

Total veg cover: _____ % Tree: _____ % Shrub: 5 % Herb: 10 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [x] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 7-2 **Date:** 3/19 **Time:** 12:31

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 558454 mE 3742496 mN

Characteristics of the floodplain unit:

Average sediment texture: Coarse Sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 70 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream: 3-1
Investigator(s): J. Wood

Date: 3/19
Town: Thousand Palms
Time: 13:40
State: CA
Photo begin file#: 75
Photo end file#: 76

Y [x] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [x] Is the site significantly disturbed?

Location Details:
Reach 3

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

Some vehicle use in drainage. Flows from Ramon Rd. seem to accumulate and flow into this drainage.

Brief site description:

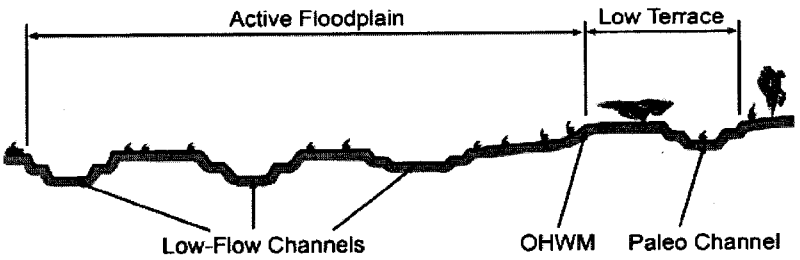
Reach 3 - 0.5 miles S of Ramon Rd. Large drainage that carries most upstream flows.

Checklist of resources (if available):

- [x] Aerial photography
  Dates: 6/96 through 8/18
- [x] Topographic maps
- [ ] Geologic maps
- [x] Vegetation maps
- [x] Soils maps
- [x] Rainfall/precipitation maps
- [x] Existing delineation(s) for site
- [x] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [ ] GPS
   - [x] Digitized on computer
   - [ ] Other:

Project ID: 3219 **Cross section ID:** 3-1 **Date:** 3/19 **Time:** 13:00

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 11S 559046 mE, 3741157 mN

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: _____ % Tree: _____ % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms | **Date:** 12/11/2019 | **Time:** 12:15
Project Number: 3219 | **Town:** Thousand Palms | **State:** CA
Stream: | **Photo begin file#:** | **Photo end file#:**
Investigator(s): J. Wood / C. Huntley

Y ☐ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☐ Is the site significantly disturbed?

Location Details:
NW of Xavier School

Projection: **Datum:**
Coordinates: 11 S 559535, 3740656

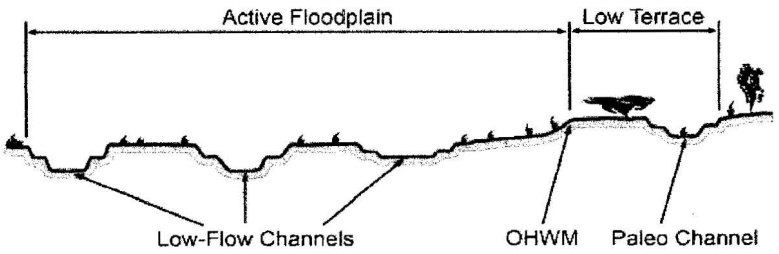
Potential anthropogenic influences on the channel system:
Roads and levees upstream are diverting or directing flows.

Brief site description:
Approx. 0.6 miles NW of Xavier School.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 1976, 1977, 1996, 2002, 2005
- ☒ Topographic maps 2009-2016
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

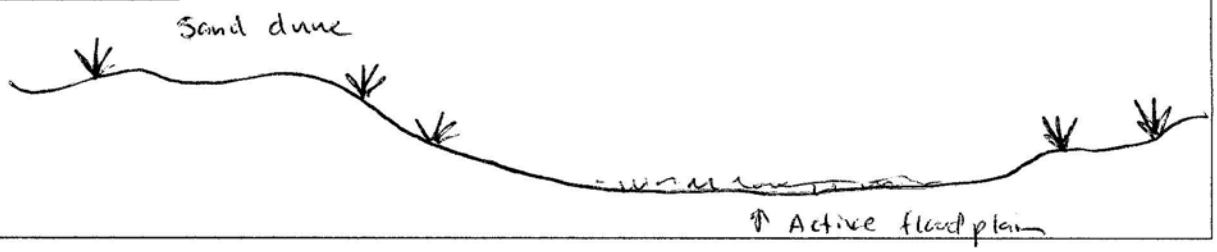


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☒ GPS
   - ☐ Other:

Project ID: 3219 **Cross section ID:** 3-2 **Date:** 12/11/2009 **Time:** 1230

Cross section drawing:



OHWM

GPS point: 11S 559535, 3740656

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Dense patch of non-native grasses and mustards ends at well defined line.

Floodplain unit:

- [ ] Low-Flow Channel
- [ ] Active Floodplain
- [x] Low Terrace

GPS point: 11S 559519, ~~34~~ 3740653

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 30 % Tree: 0 % Shrub: 20 % Herb: 10 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [x] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 3-2 **Date:** 12/11/2019 **Time:** 1230

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: 11S 559564, 3740654

Characteristics of the floodplain unit:

Average sediment texture: med. silt

Total veg cover: 80 % Tree: 0 % Shrub: 5 % Herb: 75 %

Community successional stage:

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☒ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Recent evidence of seasonal ponding. Also clear on several aerial images from the past.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream:
Investigator(s): J. Wood / C. Huntley

Date: 12/11/2019 **Time:** 1030
Town: Thousand Palms **State:** CA
Photo begin file#: **Photo end file#:**

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details: S of Ave. 38th and 0.6 miles W of Washington St.

Projection: **Datum:**
Coordinates: 11S 563540, 3737084

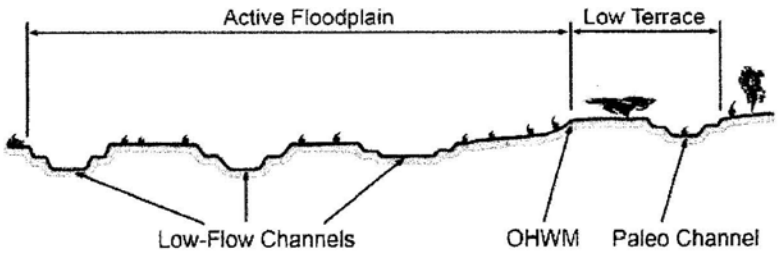
Potential anthropogenic influences on the channel system:
Ave. 38th, wind rows, and historic development may be altering flow in the area.

Brief site description:
Large sand flat south of Ave. 38th, old wind rows running north to south.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 1976, 1977, 1996, 2002, 2005
- ☒ Topographic maps 2009 - 2018
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

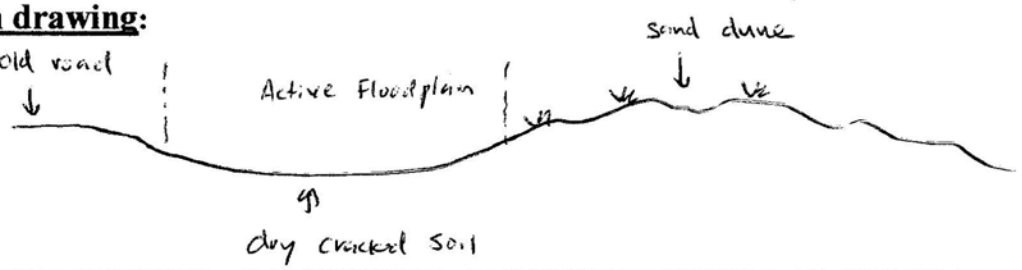


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☒ GPS
   - ☐ Other:

Project ID: 3219 **Cross section ID:** 4-1 **Date:** 12/11/2019 **Time:** 1030

Cross section drawing:



OHWM

GPS point: 11S 563540, 3737084

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit:

- [ ] Low-Flow Channel
- [ ] Active Floodplain
- [x] Low Terrace

GPS point: 11S 563558, 3737083

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 35 % Tree: 0 % Shrub: 0 % Herb: 35 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 4-1 **Date:** 12/11/2019 **Time:** 1030

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: 11 S 563513, 3737081

Characteristics of the floodplain unit:

Average sediment texture: Med. silt

Total veg cover: 20 % Tree: 0 % Shrub: 0 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☒ Mudcracks
- ☒ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Appears to have flowed in 1976. More recent flows have melted silt and resulted in localized flows only.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 1000 Palms
Project Number: 3219
Stream:
Investigator(s): J. Wood / C. Huntley

Date: 12/11/2019 **Time:** 0930
Town: Thousand Palms **State:** CA
Photo begin file#: **Photo end file#:**

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details: South of 38th Ave, W of Washington St.

Projection: **Datum:**
Coordinates: 33.772153, -116.306830

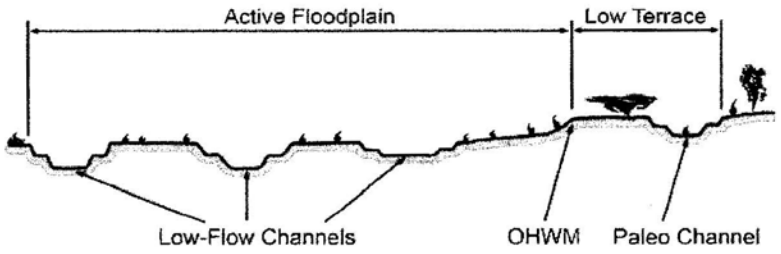
Potential anthropogenic influences on the channel system:
Ave. 38th may be altering the flow patterns from the north. Development to the south has channelized the features and conveys flows east.

Brief site description:
Large sand field just south of Ave. 38th. Old wind rows with wind-blown sands running north to south.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 1976, 1977, 1996, 2002, 2005, 2009 - 2018
- ☒ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

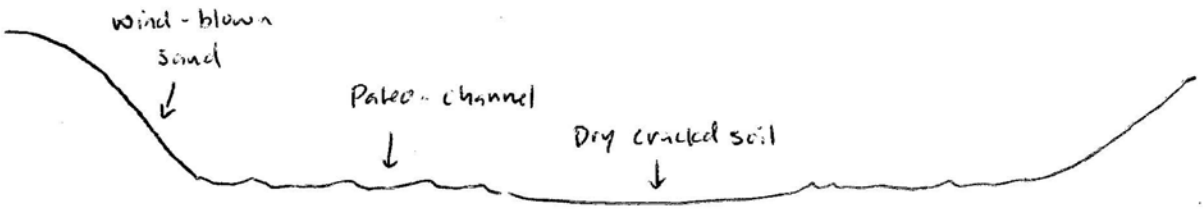


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☒ GPS
   - ☐ Other:

Project ID: 3019 **Cross section ID:** 4-2 **Date:** 12/11/2019 **Time:** 0930

Cross section drawing:



OHWM

GPS point: 11S 564203, 3737109

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

OHWM is difficult to detect in the field. Mapped at edge of old flow patterns and slight changes in vegetation and sediment.

Floodplain unit:

- [ ] Low-Flow Channel
- [ ] Active Floodplain
- [x] Low Terrace

GPS point: 11S 564203, 3737109

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 30 % Tree: 0 % Shrub: 5 % Herb: 25 %

Community successional stage:

- [ ] NA
- [x] Mid (herbaceous, shrubs, saplings)
- [ ] Early (herbaceous & seedlings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3219 **Cross section ID:** 4-2 **Date:** 12/11/2019 **Time:** 1000

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: 11 S 564183 3737109

Characteristics of the floodplain unit:

Average sediment texture: Silty sand

Total veg cover: 20 % Tree: 0 % Shrub: 5 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☒ Mudcracks
- ☒ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Area recieved storm flows in 1976 and does not appear to have had any large flows since this time. It has isolated plays with cracked soils and remnant flow lines.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Attachment D – Representative Site Photos

Photo 1: Downstream view of drainage 1-5 within Reach 1.

Photo 2: Upstream view of drainage 1-9 within Reach 1.

Reach 3: Upstream view of small unnamed drainages along the west side of Desert Moon Drive within Reach 1.

Photo 4: Upstream view of drainage 1-21 within Reach 1.

Photo 5: Upstream view of drainage 3-1 within Reach 3.

Photo 6: View of cracked soil along drainage 1-10, just downstream of the Reach 1 impact area.

Photo 7: View of wetland sample location 1 within Reach 1.

Photo 8: View of soil cross-section from within Wetland Sample Location 2 within Reach 2.

Attachment E - Federal Waters and Wetlands Delineation Methods

Federal Non-Wetland Waters Delineation Methods

Jurisdictional non-wetland "waters of the U.S." were delineated based on the limits of the ordinary high-water marks (OHWM) as determined by changes in physical and biological features, such as bank erosion, deposited vegetation or debris, and vegetation characteristics. Geomorphic and vegetative indicators used are presented in Tables 1 and 2.

Table 1. Potential Geomorphic Indicators of Ordinary High-Water Marks for the Arid West

(A) Below OHW	(B) At OHW	(C) Above OHW
1. In-stream dunes	1. Valley flat	1. Desert pavement
2. Crested ripples	2. Active floodplain	2. Rock varnish
3. Flaser bedding	3. Benches: low, mid, most prominent	3. Clast weathering
4. Harrow marks	4. Highest surface of channel bars	4. Salt splitting
5. Gravel sheets to rippled sands	5. Top of point bars	5. Carbonate etching
6. Meander bars	6. Break in bank slope	6. Depositional topography
7. Sand tongues	7. Upper limit of sand-sized particles	7. Caliche rubble
8. Muddy point bars	8. Change in particle size distribution	8. Soil development
9. Long gravel bars	9. Staining of rocks	9. Surface color/tone
10. Cobble bars behind obstructions	10. Exposed root hairs below intact soil layer	10. Drainage development
11. Scour holes downstream of obstructions	11. Silt deposits	11. Surface relief
12. Obstacle marks	12. Litter (organic debris, small twigs and leaves)	12. Surface rounding
13. Stepped-bed morphology in gravel	13. Drift (organic debris, larger than twigs)	
14. Narrow berms and levees		
15. Streaming lineations		
16. Desiccation/mud cracks		
17. Armored mud balls		
18. Knick Points		

Table 2. Potential Vegetation Indicators of Ordinary High-Water Marks for the Arid West

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1. Herbaceous marsh species 2. Pioneer tree seedlings 3. Sparse, low vegetation 4. Annual herbs, hydromesic ruderals 5. Perennial herbs, hydromesic clonals	1. Annual herbs, hydromesic ruderals 2. Perennial herbs, hydromesic clonals 3. Pioneer tree seedlings 4. Pioneer tree saplings	1. Annual herbs, xeric ruderals 2. Perennial herbs, non-clonal 3. Perennial herbs, clonal and non-clonal co-dominant 4. Mature pioneer trees, no young trees 5. Mature pioneer trees w/upland species 6. Late-successional species
Mesoriparian Indicators	6. Pioneer tree seedlings 7. Sparse, low vegetation 8. Pioneer tree saplings 9. Xeroriparian species	5. Sparse, low vegetation annual herbs, hydromesic 6. ruderals 7. Perennial herbs, hydromesic clonals 8. Pioneer tree seedlings 9. Pioneer tree saplings 10. Xeroriparian species 11. Annual herbs, xeric ruderals	7. Xeroriparian species 8. Annual herbs, xeric ruderals 9. Perennial herbs, non-clonal 10. Perennial herbs, clonal and non-clonal codominant 11. Mature pioneer trees, no young trees 12. Mature pioneer trees, xeric understory 13. Mature pioneer trees w/upland species 14. Late-successional species 15. Upland species

Table 2. Potential Vegetation Indicators of Ordinary High-Water Marks for the Arid West			
	(D) Below OHW	**(E) At OHW**	**(F) Above OHW**
Xeroriparian indicators	10. Sparse, low vegetation 11. Xeroriparian species 12. Annual herbs, xeric ruderals	12. Sparse, low vegetation 13. Xeroriparian species 14. Annual herbs, xeric ruderals	16. Annual herbs, xeric ruderals 17. Mature pioneer trees w/upland species 18. Upland species

Federal Wetland Delineation Methods

Vegetation

Plant species in each stratum (tree, sapling/shrub, herb, and woody vine) were ranked according to their canopy dominance (USACE, 2008). Beginning with the species with the highest coverage, species that contributed to a cumulative coverage total of at least 50 percent and any species that comprised at least 20 percent of the total coverage for each stratum were recorded on the Field Data Sheets (50/20 Rule). The wetland indicator status was assigned to each dominant species using Region 0 in the *List of Plant Species that Occur in Wetlands* and *Summary of Wetland Indicator Status* (Reed, 1988), the California Region in the *National List of Vascular Plant Species That Occur In Wetlands* (National Wetlands Inventory, 1996), and the Arid West Region of the *National Wetland Plan List* (USACE, 2012). As shown below in Table 1, if greater than 50 percent of the dominant species from all strata were Obligate, Facultative-wetland, or Facultative species, the criteria for wetland vegetation were considered to be met.

Table 3. Summary of Wetland Indicator Status		
Category		**Probability**
Obligate Wetland	OBL	Almost always occur in wetlands (estimated probability >99%)
Facultative Wetland	FACW	Usually occur in wetlands (estimated probability of 67–99%)
Facultative	FAC	Equally likely to occur in wetlands/non-wetlands (estimated probability of 34–66%)
Facultative Upland	FACU	Usually occur in non-wetlands (estimated probability 67–99%)
Obligate Upland	UPL	Almost always occur in non-wetlands (estimated probability >99%)
Non-Indicator	NI	No indicator status has been assigned

Source: Reed, 1988

Hydrology

The presence of wetland hydrology was evaluated by recording the extent of observed primary and secondary indicators (USACE, 2008). Indicators such as but not limited to surface water or saturated soils (both Group A indicators) would be recorded if observed within the Review Area. The Arid West Supplement includes two additional indicator groups that can be utilized during dry conditions or in areas where surface water/saturated soils are not present including Group B (evidence of recent inundation) and Group C (evidence of recent soil saturation) (USACE, 2008). The indicators are divided into two categories (primary and secondary indicators) and the presence of one primary indicator from any of the groups is considered evidence of wetland hydrology. These indicators are intended to be one-time observations of site conditions representing evidence of wetland hydrology when hydrophytic vegetation and hydric soils are present (USACE, 2008).

Table 4. Wetland Hydrology Indicators*

Primary Indicators	Secondary Indicators
Watermarks	Oxidized Rhizospheres Associated with Living Roots
Water-Borne Sediment Deposits	FAC-Neutral Test
Drift Lines	Water-Stained Leaves
Drainage Patterns Within Wetlands	Local Soil Survey Data

*Table adapted from 1987 USACE Manual and Related Guidance Documents.

Table 5. Wetland Hydrology Indicators for the Arid West*

	Primary Indicator (any one indicator is sufficient to determine that wetland hydrology is present)		Secondary Indicator (two or more indicators are required to determine that wetland hydrology is present)
Group A – Observation of Surface Water or Saturated Soils			
A1 – Surface Water	X		
A2 – High Water Table	X		
A3 – Saturation	X		
Group B – Evidence of Recent Inundation			
B1 – Water Marks	**X** (Non-riverine)		**X** (Riverine)
B2 – Sediment Deposits	**X** (Non-riverine)		**X** (Riverine)
B3 – Drift Deposits	**X** (Non-riverine)		**X** (Riverine)
B6 – Surface Soil Cracks	X		
B7 – Inundation Visible on Aerial Imagery	X		
B9 –Water-Stained Leaves	X		
B10 – Drainage	X		X
B11 – Salt Crust	X		
B12 – Biotic Crust	X		
B13 – Aquatic Invertebrates	X		
Group C – Evidence of Current or Recent Soil Saturation			
C1 – Hydrogen Sulfide Odor	X		
C2 – Dry-Season Water Table			X
C3 – Oxidized Rhizospheres along Living Roots	X		
C4 – Presence of Reduced Iron	X		
C6 – Recent Iron Reduction in Tilled Soils	X		
C7 – Thin Muck Surface	X		
C8 – Crayfish Burrows		X	
C9 – Saturation Visible on Aerial Imagery		X	
Group D – Evidence from other Site Conditions or Data			
D3 – Shallow Aquitard		X	
D5 – FAC-Neutral Test		X	

*Table adapted from Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0.

Soils

Historic soil data from the National Resource Conservation Society (NRCS) was used to determine if and where hydric soils could be present (NRCS, 2019a; NRCS, 2019b). Refer to Section 2.6 of the delineation report for a detailed description of soils that have historically occurred in the Review Area. Soil pits, if necessary, were excavated in areas containing both wetland vegetation and hydrology in an effort to document the soil structure regardless of whether or not hydric soils were mapped. Soil pits were dug to a depth of 20 inches where possible (USACE, 2008). At each soil pit, the soil texture and color were recorded by comparison with standard plates within a Munsell soil color chart (2000). Any other indicators of hydric soils, such as redoximorphic features, buried organic matter, organic streaking, reduced soil conditions, gleyed or low-chroma soils were also recorded.

Table 6. Field Indicators of Hydric Soil Conditions*

1. Indicators of Historical Hydric Soil Conditions	2. Indicators of Current Hydric Soil Conditions
a. Histosols b. Histic epipedons; c. Soil colors (e.g., gleyed or low-chroma colors, soils with bright mottles (Redoximorphic features) and/or depleted soil matrix d. High organic content in surface of sandy soils e. Organic streaking in sandy soils f. Iron and manganese concretions g. Soil listed on county hydric soils list	a. Aquic or peraquic moisture regime (inundation and/or soil saturation for *7 continuous days) b. Reducing soil conditions (inundation and/or soil saturation for *7 continuous days) c. Sulfidic material (rotten egg smell)

*Table adapted from 1987 USACE Manual and Related Guidance Documents.

Table 7. Hydric Soil Indicators for the Arid West*

Hydric Soil Indicators			Hydric Soil Indicators for Problem Soils**
All Soils	Sandy Soils	Loamy and Clay Soils	
A1 – Histosol	S1 – Sandy Mucky Mineral	F1 – Loamy Mucky Mineral	A9 – 1 cm Muck
A2 – Histic Epipedon	S4 – Sandy Gleyed Matrix	F2 – Loamy Gleyed Matrix	A10 – 2 cm Muck
A3 – Black Histic	S5 – Sandy Redox	F3 – Depleted Matrix	F18 – Reduced Verti
A4 – Hydrogen Sulfide	S6 – Stripped Matrix	F6 – Redox Dark Surface	TF2 – Red Parent Material
A5 – Stratified Layers	—	F7 – Depleted Dark Surface	Other (See Section 5 of Regional Supplement, Version 2.0)
A9 – 1 cm Muck	—	F8 – Redox Depressions	—
A11 – Depleted Below Dark Surface	—	F9 – Vernal Pools	—
A12 – Thick Dark Surface	—	—	—

* Table adapted from Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0.

** Indicators of hydrophytic vegetation and wetland hydrology must be present

Attachment F - Wetland Indicator Status of Plant Species Observed in the Review Area

Scientific Name	Common Name	Wetland Indicator Status**
AMARANTHACEAE	AMARANTH FAMILY	
Amaranthus albus	Tumbling pigweed	FACU
ASCLEPIADACEAE	MILKWEED FAMILY	
Asclepias subulata	Rush milkweed	--
ASTERACEA	ASTER FAMILY	
Ambrosia dumosa	White bursage, burrobush	--
Baileya pauciradiata	Few-rayed desert marigold	--
Bebbia juncea	Sweetbush	--
Chaenactis carphoclina	Pincushion	--
Chaenactis fremontii	Fremont pincushion	--
Dicoria canescens	Desert dicoria	--
Encelia farinosa	Brittlebush	--
Gerea canescens	Desert sunflower	--
Ambrosia salsola	Cheesebush	UPL
Lactuca serriola	Prickly lettuce	FAC/FACU
Malacothrix glabrata	Desert dandelion	--
Palafoxia arida	Spanish needle	--
Perityle emoryi	Emory rock-daisy	--
Pluchea sericea	Arrow-weed	FACW
Psathyrotes ramosissima	Velvet rosettes	--
Rafinesquia neomexicana	Desert chicory	--
Sonchus oleraceus	Annual sow-thistle	NI*/UPL
Stephanomeria exigua	Small wreath-plant	--
BORAGINACEAE	BORAGE FAMILY	
Cryptantha angustifolia	Narrowleaf cryptantha	--
Cryptantha maritima	White hair cryptantha	--
Tiquilia palmeri	Palmer tequilia	--
BRASSICACEAE	MUSTARD FAMILY	
Brassica tournefortii	Wild turnip	--
Lepidium lasiocarpum	Sand peppergrass	--
Sisymbrium irio	London rocket	--
CACTACEAE	CACTUS FAMILY	
Cylindropuntia echinocarpa	Silver cholla	--
Opuntia basilaris var. *basilaris*	Beavertail cactus	--
CARYOPHYLLACEAE	CARNATION FAMILY	
Achyronychia cooperi	Onyx flower	--
CHENOPODIACEA	GOOSEFOOT FAMILY	
Atriplex canescens	Four-winged saltbush	FACU
Salsola tragus	Russian thistle	FACU
EUPHORBIACEA	SPURGE FAMILY	
Chamaesyce polycarpa ssp. *hirtella*	Sand mat	--
Croton californicus	California croton	--
Stillingia spinulosa	Annual stillingia	--
FABACEAE	PEA FAMILY	
Acacia sp.	Unidentified tree	NI*/FACU
Astragalus aridus	Annual desert milk-vetch	--
Astragalus didymocarpus var. *dispermus*	Two-seeded milk-vetch	--
Astragalus lentiginosus var. *coachellae*	Coachella Valley milk-vetch	UPL
Cassia nemophila	Desert cassia	--
Lotus strigosus	Desert lotus	--
Lupinus arizonicus	Arizona lupine	--
Psorothamnus arborescens	Indigo bush	FACU
Psorothamnus emoryi	Emory indigo bush, dye-weed	--
Psorothamnus schottii	Indigo bush	--
GERANIACEAE	GERANIUM FAMILY	

Scientific Name	Common Name	Wetland Indicator Status**
Erodium cicutarium	Red-stemmed filaree	-
HYDROPHYLLACEAE	WATERLEAF FAMILY	
Phacelia crenulata	Heliotrope phacelia	-
KRAMERIACEAE	KRAMERIA FAMILY	
Krameria grayii	White rhatany	-
LOASACEAE	STICK-LEAF FAMILY	
Mentzelia involucrata	Sand blazing star	--
Petalonyx thurberi	Sandpaper plant	--
MALVACEAE	MALLOW FAMILY	
Eremalche exilis	Trailing mallow	--
Malva parviflora	Cheeseweed	--
NYCTAGINACEAE	FOUR O'CLOCK FAMILY	
Abronia villosa var. *villosa*	Sand verbena	--
Abronia villosa var. *aurita*	Chaparral sand verbena	--
ONAGRACEAE	EVENING PRIMROSE FAMILY	
Camissonia californica	California false mustard	--
Camissonia claviformis ssp. *aurantiaca*	Pinnate leaved primrose	--
Camissonia claviformis ssp. *claviformis*	Clavate evening primrose	--
Oenothera deltoides ssp. *deltoides*	Dune evening primrose	--
Oenothera californica	California primrose	--
PLANTAGINACEAE	PLANTAIN FAMILY	
Plantago ovata	Desert plantain	FACU
POACEAE	GRASS FAMILY	
Bromus madritensis var. *rubens*	Red brome	--
Cynodon dactylon	Bermuda grass	FACU
Hordeum murinum	Hare barley	UPL/FACU
Pleuraphis rigida	Big galleta	--
Schismus arabicus	Mediterranean grass	--
Stipa capensis	Cape ricegrass	--
POLEMONIACEAE	PHLOX FAMILY	
Gilia latifolia	Broad-leaved gilia	--
Loeseliastrum schottii	Schott's langloisia	-
POLYGONACEAE	BUCKWHEAT FAMILY	
Chorizanthe brevicornu	Brittle spineflower	--
Eriogonum deflexum	Skeleton weed	--
Eriogonum inflatum var. *inflatum*	Desert trumpet	--
SOLANACEAE	NIGHTSHADE FAMILY	
Datura wrightii	Jimsonweed, tolguacha	UPL
TAMARICACEAE	TAMARISK FAMILY	
Tamarix ramosissima	Tamarisk	FAC
ZYGOPHYLLACEAE	CALTROP FAMILY	
Larrea tridentata	Creosote bush	--
Tribulus terrestris	Puncture vine	--

Attachment G – Contact Information for all Property Owners within the Review Area

Assessor's Parcel Number (APN)	Owner	Mailing Address	City and State	Zip Code
648200017	Alejandro and Maria Aguilar	68830 Los Gatos Rd	Cathedral City, CA	92234
748290004	Alma Mays	38129 Grand Oaks Ave	Palm Desert, CA	92211
648230024	Andres, Enrique, and Flora Garcia	P.O. Box 1018	Thousand Palms, CA	92276
748290001	Barbara Crabtree	4725 E Anaheim St	Long Beach, CA	90804
651140034, 651140035	Benito and Justina Meza, Carlos Inzuna	P.O. Box 367	Thousand Palms, CA	92276
694050019	Berger H N & Frances Foundation	P.O. Box 13390	Palm Desert, CA	92255
648230036	Bernard And Michele Lulow	P.O. Box 3	Palm Desert, CA	92261
648220021	Brilliant Corners	1390 Market St Ste 405	San Francisco, CA	94102
695120001	Champion Life Church	72745 Highway 111	Palm Desert, CA	92260
748300004	Charles Devalon	38305 Grand Oaks Ave	Palm Desert, CA	92211
626150037, 626150038, 626150039	City Of Riverside	3403 10th St Ste 400	Riverside, CA	92501
648220014	Clifford and Kathleen Stone	29300 Desert Moon Dr	Thousand Palms, CA	92276
651140030, 651130058, 651140031, 651130061, 648200001, 648220020, 651140032, 648200041, 648220023, 648250003, 651030001, 651140033, 651130060, 651130059, 651230009, 648200027	Coachella Valley Conservation Commission	70711 Tamarisk Ln	Rancho Mirage, CA	92270
648140001, 748390005, 648230026	Coachella Valley Water District	P.O. Box 1058	Coachella, CA	92236
626150040, 748390004	County of Riverside	P.O. Box 1180	Riverside, CA	92502
648230032	Cynthia Pontious	9282 El Mirador Blvd	Desert Hot Springs, CA	92240
648200031	Dagoberto and Jose Padilla	P.O. Box 2061	Indio, CA	92202
648200029	Dagoberto and Maria Padilla	P.O. Box 1001	Thousand Palms, CA	92276
648220016	Daniel Emrich	98 Seton Rd	Irvine, CA	92612
648220042	Danny and Christina Bartlett	78930 La Palma Dr	La Quinta, CA	92253
648230025	Deanne Bird	71600 Jaguar Way	Palm Desert, CA	92260
748390008, 748390009, 748390006, 748390007	Del Webb Calif Corp.	40048 Corte Refugio	Indio, CA	92203
648140010, 651130041, 651130043, 651130066, 648250004, 648250012, 651130042, 651020004	Department of Fish & Game Wildlife Conservation	1807 13th St No 103	Sacramento, CA	95814

626420053, 626420052	Desert Business Park II	1302 Puyallup St	Sumner, WA	98390
626420034	Desert Business Park Prop Owners Assn	1302 Puyallup St	Sumner, WA	98390
748300012	Dickson Francine Rad Revocable Living Trust	78020 Ravencrest Cir	Palm Desert, CA	92211
648120005	Dionisios and Irini Argyros	2813 Monogram Ave	Long Beach, CA	90815
748300006	Douglas and Rebecca Delmonte	4550 Lynden Rd No 1204	Birch Bay, WA	98230
748300003	Elizabeth, Paul, and Claudia Wilderman	1460 Homewood Rd No 95a	Seal Beach, CA	90740
648230029	Felipe Fuentes	1500 E San Rafael No 109	Palm Springs, CA	92262
651140014, 651130057, 651140013, 651140016, 651140015	Frank Faraone, Peter and Nan Tynberg	70711 Tamarisk Ln	Rancho Mirage, CA	92270
648200025	Frieda Mccallum	73495 Burr Oak Rd	Thousand Palms, CA	92276
748290002	G Richards	38173 Grand Oaks Ave	Palm Desert, CA	92211
648210025	Gabriel Zavala	P.O. Box 712	Thousand Palms, CA	92276
626420051	Grinnell Prop	1302 Puyallup St	Sumner, WA	98390
648230018, 648230015	Gwendolyn Pontious	9282 El Mirador	Desert Hot Spring, CA	92240
695100002, 695100001, 695070015, 695070011, 695100015, 695100014	H N & Frances C Berger Foundation	P.O. Box 13390	Palm Desert, CA	92255
651230015	Imperial Irrigation Dist	P.O. Box 248	Coachella, CA	92236
748300001	James and Linda Gaddie	811 Briarstone Ln	Knoxville, TN	37934
648220022	Jerry and Olga Stone	19 Arrowhead Buff	Seguin, TX	78155
748300005	Jose and Norma Figueroa	22253 Hayes St	Woodland Hills, CA	91303
648200015	Loenardo and Maria Valenzuela	72877 Dinah Shore Dr 103	Rancho Mirage, CA	92270
648110013	Loren and Carol Lewis	71847 Sahara Rd	Rancho Mirage, CA	92270
648220017	Luis and Graciela Sanchez	67401 Mission Dr	Cathedral City, CA	92234
648200033	Maribel Cortez	32400 Navajo Tr	Cathedral City, CA	92234
648200043	Mario, Robert, and Magdaleno Munoz	1340 N San Antonio Ave	Upland, CA	91786
648210019	Mary Escamilla	P.O. Box 265	Thousand Palms, CA	92276
648220013	Minas Inv Inc.	31485 Avenida Juarez	Cathedral City, CA	92234
626150008, 626150012, 626150006, 626150014, 626140003, 626150004, 626150025, 626150013, 626150005, 626150011, 626150009, 626150007, 626150010	Mirasera	2580 Wyandotte St Ste G	Mountain View, CA	94043

626130019	Palm Desert 53 Inv	1500 N Raymond Ave	Fullerton, CA	92831
651140028	Pei Lin Hseih	35 Lucile St No B	Arcadia, CA	91006
648110012	Ralph Commber, Mary Latulippe, and Virgil Hartman	1014 Andreas Palms Dr	Palm Springs, CA	92264
648200018	Ramses Martinez	29305 Desert Moon Dr	Thousand Palms, CA	92276
648110001	Reynolds Family Living Trust	35065 Country Green Rd	Steamboat Springs, CO	80487
695070016	Russell and Mirijam Clarke	35450 Pegasus Ct	Palm Desert, CA	92211
748300007	Sharon Kay	38393 Waverly Rd	Palm Desert, CA	92211
650241001, 648230023	Silvestre Montes	31450 Via Las Palmas	Thousand Palms, CA	92276
648230037	Southern Calif Edison Co.	P.O. Box 410	Long Beach, CA	90801
648200026, 648210024, 651130067, 648200032, 648150006, 648150015, 648200040, 648210013, 648200042, 648210020	Southern California Edison Co.	P.O. Box 800	Rosemead, CA	91770
748300002	Steven And Maria Brooten	38261 Grand Oaks Ave	Palm Desert, CA	92211
748390010, 748390011	Sun City Palm Springs Community Association	39755 Berkey Dr	Bermuda Dunes, CA	92201
626130003	Tamara Fields	3018 Corda Dr	Los Angeles, CA	90049
648150031	Tara Alford	79925 Horseshoe Rd	La Quinta, CA	92253
648150032	Thomas Young	79 925 Horseshoe Rd	La Quinta, CA	92253
651130062, 651140017	Thousand Palms 278	P.O. Box 12950	Palm Desert, CA	92255
748290003	Timothy and Linda Nelson	4332 Pine Point Rd	Sartell, MN	56377
695070002, 695030002, 695030005, 695030007, 695030009, 695030012, 695030008, 648030016	USA 653	911 NE 11th	Portland, OR	97233
695030013, 695030014	Xavier College Preparatory High School	34200 Cook St	Palm Desert, CA	92211